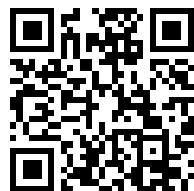

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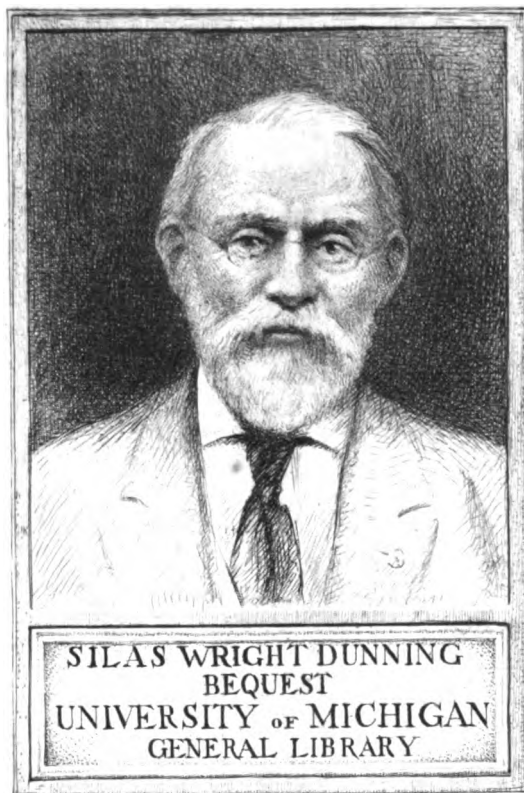
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THE SHENANDOAH VALLEY CAMPAIGN, 1861-62.

By M.

The history of this campaign derives its especial interest for the military student from the fact that it is probably the best example, in modern times, of the influence which a comparatively small force can exercise in a campaign, in which immeasurably larger forces than itself are involved, and that not only in its own vicinity, but also in distant parts of the theatre of operations. To us, English, it is particularly interesting, in that it affords us an excellent study of the advantages of an active defence policy in strategy and tactics to which our campaign in the Peninsula has led us to attach an almost national significance. It gives us, moreover, an illustration of the shortcomings inherent in half-trained troops, such as the forces on both sides were largely composed of. Such an illustration seems specially relevant at the present time, when we are apt to have the untutored Boer cast in our teeth as the model of military efficiency; and when the leading journalists of the day, speaking from their South African experiences, do not hesitate to give publicity to their opinions that the volunteer is more than the equal of his brother, the Regular. A perusal of the very trite remarks on this subject made by the late Colonel Henderson in that masterly treatise—"Stonewall Jackson"—should speedily remove any doubts as to the truth of this proposition.

To the skill and daring of General T. J. Jackson (commonly known to his troops as 'Old Stonewall')* is due the great success of the Confederate arms in the campaign which it is proposed to briefly describe here. It is impossible to enter into such a description, however, short, without a few remarks on the wonderful man whose genius, as shown in this campaign, "has placed his name, in the estimation of the world, high on the rôle of captains." For more than a few

* Due to his bearing and conduct at the battle of Manassas, July 21st, 1861.

words we have no space, but to those of our readers who would wish further information we would recommend Dr. Dabney's 'Life of Jackson' and Colonel Henderson's work mentioned above.

Jackson, a descendant of a Scotch border family which had emigrated to Ulster and thence to America, was born at Clarksburg, Western Virginia, in January 1824. Being left an orphan at an early age, the force of circumstances caused him to serve a practical apprenticeship in lumbering and agriculture on his uncle's farm, where he had to learn to hold his own as best he could, and where he acquired the reputation of being a first class light weight jockey. At the age of 17 he became a constable of the country, and at 19, mainly owing to his ambition and perseverance, he succeeded in obtaining a nomination to the Military Academy at West Point. Here he further shewed his determination and perseverance to such an extent that, although in training and education he was at first far behind his fellow cadets, he nevertheless succeeded in passing out 17th at the end of his four years' course; and it was said of him that "if the course had been a year longer, he would have come out first." Socially he was hardly a success, and neither his figure nor deportment appear to have been anything but awkward.

Jackson received his first commission as 2nd-Lieutenant of Artillery on June 30th, 1846, and was almost immediately ordered to join his regiment, the First Artillery, in Mexico, with which State the American Government was then at war. In the next year, in the march on the City of Mexico, he seized the opportunities field service offered and so distinguished himself as Lieutenant in Magruder's Field Battery, to which he was appointed on its formation after its capture from the Mexicans, that he was granted the Brevet of Captain for gallant and meritorious conduct at Chumusco, August 20th, 1847, and the Brevet of Major for gallantry at Chapultepee on 13th September 1847. At the end of the war he returned with his battery to Long Island. "He had gone out to Mexico a 2nd-Lieutenant; he had come back a field officer. He had won a name in the army, and his Native State had enrolled him amongst her heroes. He had gone out an unformed youth; he had come back a man and a proved leader of men. He had been known merely as an indefatigable student and a somewhat unsociable companion. He had come back with a reputation for daring courage, not only the courage which glories in swift action and the excitement of the charge, but courage of an enduring quality."*

He remained with his battery till 1851, when he was elected Professor of Natural and Experimental Philosophy in the Virginia Military Institute at Lexington, and, glad to be relieved from the monotony of regimental routine, he resigned the army. His duties at Lexington appear to have been somewhat peculiar, and, amongst other things, he was responsible for the drill of the cadets. He found, however, every opportunity for increasing his professional knowledge, and the wars of Napoleon were his constant study. The result, as we shall see later on, proved him to be an excellent illustration of the adage that "those Generals who have gained the greatest

* Henderson's "Stonewall Jackson."

successes in the field have been the most assiduous students of the art of war in time of peace." As regards the reports of Jackson, which describe him as a narrow-minded and bigoted fanatic, we have not the space to enter into a discussion, since we are dealing with him entirely as a soldier. There seems little doubt, however, that these reports have been grossly exaggerated, while, at the same time, there is abundance of evidence to shew that his undoubted genius for war was never suspected during his ten years at Lexington.

On April 21st, 1861, the senior cadets from Lexington left for Richmond under Major Jackson to help in drilling the recruits of the Confederate Army. On April 29th Jackson took over command at Harper's Ferry as Colonel. He was made Brigadier-General on July 3rd; and on July 21st he rendered conspicuous service at Manassas, where he earned the sobriquet of 'Stonewall.' On the 7th October he was made Major-General in recognition of his services at Manassas and was shortly afterwards given the command of the Shenandoah Valley District, from which time till he left the valley in 1862 we will follow his successes. Before commencing on these, however, it is necessary to turn aside to glance at the causes that led to the war of secession, at the respective nature, resources, etc., of the combatants on either side, and at the strategic value of the Shenandoah Valley.

It is often stated that the declared policy of the Republican party of the Northern State to abolish slavery was the cause of secession of the Southern, or Confederate, States. This is not altogether correct, for, while no doubt the anti-slavery movement and the election of Lincoln as President precipitated matters, the course of events had been slowly tending towards such a rupture for years. Each State forming part of the union was semi-independent, in that it possessed its own legislature, its own militia and that it held the power of the purse. Any attempt, therefore, by the Federal Government to interfere in a domestic question, such as the emancipation of slaves in any particular State, or in the States forming the union as a whole, was held to be quite unconstitutional.

It had been evident for years that the interests of the North and South were divergent; those of the latter being purely agricultural, while those of the former were essentially industrial. The South asked for free trade for her cotton and tobacco which monopolised the markets of the world; while the manufacturers of the North saw their only chance of competition against foreign manufacture in protection in the shape of an oppressive tariff. This they were powerful enough politically to enforce. The South felt, therefore, that they were being despoiled to contribute towards the trade of the North. Then, again, there was in the South a social system headed by a landed aristocracy, conservative to a degree, and jealous of any encroachments on its constitutional guarantees; while in the North we find a manufacturing plutocracy to whom wealth and merit were alone acceptable in their leaders, chafing against the constitutional barriers which prevented the centralized form of Government which

they deemed essential to the necessary expansion of their commerce and manufactures.

For some time past the struggle politically had been fierce and keen; and, fanned by unscrupulous agitators, bitterness had grown to mutual hatred. The anti-slavery cry of the "Black Republicans" and the election of Mr. Lincoln to the Presidency in 1860 brought matters to a head. At this distance of time, looking at matters as they stood, it may be questioned whether the South did not show undue haste in the step they took. It is by no means certain that the abolitionists were at all numerous in the North, though no doubt the South believed that the loud denunciations of this party were the signs of a strong attempt to set the constitution aside. It was the general principle involved in this latter, rather than the question of the emancipation of the slaves, that sent the larger number of Southerners to join the ranks of secession. Henderson says that of 8,300,000 whites in the 15 slave-holding States, only 346,000 were slave-holders, and of these 69,000 owned only one negro. It is, moreover, clear that the great majority of the Southern population derived injury rather than benefit from slavery; and that a few thousand white labourers would have profited the local markets more than 4,000,000 negroes, who neither bought nor sold, and whose wants were supplied almost entirely by their own labour.

To find a remedy was difficult. Even Lincoln himself considered the wholesale deportation of the negro population to West Africa the only way out of the difficulty. The Southerners considered, and rightly, that the negroes were not fit for emancipation, that years must elapse before they could be trained to the responsibilities of freedom, and that meanwhile the South, for want of labour, would be impoverished. The abolitionists, forgetting that every race in the world has required a more or less protracted term of probation to fit them for the rights and duties of free men, purposed to confer these rights on a people just emerged from the grossest barbarism without any probation whatever. In other parts of the world incalculable mischief had been wrought by similarly precipitate action on the part of zealous but unpractical philanthropists. That the constitution was actually in danger is improbable; and that the slavery question might have been settled to the satisfaction of both sides is likely. But the ignorance of each other's actual feelings and ideas, caused by the long and bitter political struggle, brought suspicion to the minds of the South.

In the winter of 1860-61 South Carolina, Mississpi, Alabama, Florida, Georgia, Louisiana and Texas formally seceded from the Union and proclaimed a new Republic, the Confederate States of America, with Jefferson Davis as their President. The border slave States held back for a time, and Virginia, where the feeling in favour of the Union, which she had done so much to bring about, was very strong, used all her endeavours to bring about a reconciliation. The right of secession was apparently acquiesced in by the Federal Government and, generally speaking, by the North, while Mr. Lincoln's predecessor had declared coercion to be both illegal and inexpedient.

During the three months that intervened between the secession of South Carolina and the inauguration as President of Mr. Lincoln, the Government made not the slightest attempt to interfere with the establishment of the new Confederacy; and the States composing it were allowed to take possession, with few exceptions, of the ports, arsenals, navy yards and custom-houses standing in their own territory. Even on his accession President Lincoln did nothing more than reprobate the action of the Confederates, while he declared that Government had no right to interfere with the domestic institutions of individual States. Through it all, however, the Federal Government shewed no sign of recognising the Confederate Government as a new Republic.

In the beginning of April matters came to a crisis. The surrender of Fort Sumter in Charleston Harbour, garrisoned by Federals, had been demanded by South Carolina, but no reply had been vouchsafed by Lincoln; on news being brought that an attempt would be made to supply the garrison with provisions, however, the Confederate Government ordered the Fort to be seized. On the 12th April the Southern batteries opened fire, and the next day the Standard of the Union was hauled down. Lincoln at once ordered out 75,000 militia to suppress the rebellion—an order which was loyally answered by the North, by whom the insult to the Flag was considered unpardonable. Virginia, called upon to furnish her quota of regiments for the Federal Army, deliberately and with her eyes open, knowing that war would be the result, and knowing the vast resources of the North, seceded. She was followed by Arkansas, Tennessee and North Carolina: Kentucky and Missouri attempted to remain neutral: Maryland was held in check by the Federal Government and Delaware sided with the North. As a matter of fact, however, Kentucky, Missouri and Maryland subsequently supplied large contingents to the Confederate Armies.

Henderson sums up the motives of the Southern people thus:—"They were true to their interpretation of the constitution; and if the morality of secession may be questioned, if South Carolina acted with undue haste and without sufficient provocation, if certain of the Southern politicians desired emancipation for themselves that they might continue to enslave others, it can hardly be denied that the action of Virginia was not only fully justified, but beyond suspicion. The wildest threats of the 'Black Republicans,' their loudly expressed determination, in defiance of the constitution, to abolish slavery, if necessary, by the bullet and the sabre, shook in no degree whatever her loyalty to the Union. Her best endeavours were exerted to maintain the peace between the hostile sections; and not till her liberties were menaced did she repudiate a contract which had become intolerable. It was to preserve the freedom which her forefathers had bequeathed her, and which she desired to hand down unsullied to future generations, that she acquiesced in the revolution."

Let us now turn to the nature of the opposing forces. The regular army of the Union was small, and, with their non-commissioned officers, who were either Irish or German, with no State ties, with con-

sequently no inducement to join the South, the soldiers of it mostly served with the Federals. With the officers, who were citizens first and soldiers afterwards, it was very different. It is said that a quarter, or some 300, of the graduates at West Point were Southerners and at once took service with the Confederacy. These and the regular officers, however, were all required for the higher commands, for technical duties and for the staff: thus very few were left to instruct the rank and file, who were sadly in want of such instruction. The forces on both sides were formed of the militias of the different States. The Southerners had the advantage in the class of man represented in the ranks; drawn from a purely agricultural class, most of them had been used to fire-arms all their lives; their sporting habits and training specially fitted them for war, and their intelligence individually was high; not to mention the fact that many of the wealthiest planters were, it is said, quite content to serve in the ranks. Altogether, given efficient discipline and proper equipment, it would have been difficult to imagine a finer army. Unfortunately for their cause they were lacking in both. To what extent may be instanced by the fact that flint lock muskets converted to percussion action, as also fowling pieces and short guns, were carried by no inconsiderable a portion of the men for want of rifles. The Northern troops were as undisciplined; and they laboured, moreover, under the disadvantage of being recruited largely from the industrial classes of the large cities. In their equipment, however, they had the undoubted advantage. The North had the command of the sea, and, while they were thus able to avail themselves of the markets of the world for the supply of their armies, by a blockade of the Southern coasts, they cut off the Confederates from any hope of thus supplementing their deficient equipment. The resources of the North were also immensely superior to those of the South.

The theatre of war was but sparsely populated and in places unexplored; in many cases the forests grew right up to the edges of the townships or cities; the roads, few and far between, were bad; cultivation was scarce compared to the enormous tract of country in question, and consequently food and forage were difficult to obtain; the rivers, very liable to floods, were bridged only at long intervals; a large portion of the country was low-lying, and a shower or two of rain converted it into swamps; and the forests which predominated everywhere were to a great extent pathless. It was thus, in every respect, a difficult country, and it is very necessary in studying this campaign that the student should bear this fact in mind.

Railways were few in number. Those which concern us in this campaign were—

- I.—The Baltimore-Ohio Railway from Baltimore to the Potomac, which it crossed at Harper's Ferry, where a branch line from Winchester came in, and thence to the west.
- II.—The Orange and Alexandria Railway from Alexandria through Orange Court House to Lynchburg on the James River. This line was linked by a line through Washington to Baltimore.

III.—The Manassas Railway from Mount Jackson in the Shenandoah Valley through Manassas Gap to Manassas Junction (Orange and Alexandria Railway).

IV.—Virginia Central Railway from Richmond to Gordonsville and Staunton.

(For other lines in the vicinity see map.)

The Shenandoah Valley, which runs from about Staunton to Harper's Ferry, with an average breadth of 24 miles, offered considerable advantages to either of the contending armies who could establish themselves there. It was—so to speak—the granary of the South, was possessed of more and better roads than any tract of equal size in the theatre of war, and was on the flank of any force operating between Richmond and Washington. Its own flanks were protected by mountains only traversable by an army at a few passes called 'gaps,' where the roads were indifferent. It may thus be said to have offered a covered way, with various sally ports, which would greatly facilitate action against the flank of either of the combatants. At the same time, owing to the indifferent lateral communications, a force using it would find it difficult and uncertain to communicate with other and co-operating columns outside the valley. For this reason opportunities would present themselves, to a vigilant and daring enemy, of defeating one or more of such columns in detail. It is thus clearly evident, and is a fact to be specially noticed, that the possession of these 'gaps' or passes to any force using the valley was an essential not to be overlooked by its Commander. It should be noted also that the Shenandoah River was liable to sudden and violent floods, when communication between troops on either side of it would be entirely interrupted.

To the Southerners the valley offered facilities for operations against Washington, Baltimore and the Federal line of communication. It also opened the way into Maryland, where the sympathies of a large number of the inhabitants were with the South and whence, consequently, recruits at least—if not supplies and information—might be expected. Further, it permitted raids against the Baltimore-Ohio Railway, which was the main line of supply for coal for the Northern shipping. The inhabitants of the valley were Southern in their sympathies, and not only was it therefore a Southern recruiting ground itself, but its occupation by the Federals would cut the Confederates off from similar grounds in Western Virginia and Maryland. At the same time the hostility of the country offered difficulties to its occupation by the Federals such as would not present themselves to the Confederates. There can be but little doubt, therefore, that the possession of the valley was of much advantage to the South. If the Northerners had seized and occupied it in strength from the commencement of operations, it is difficult to see how the South could have saved Richmond. That Jackson grasped this fact, while the Federals failed to realize the vital importance of the valley, or if they realized it, failed to carry their ideas into practice, is one of the main

lessons of this campaign. The Northerners were particularly sensitive to any movement in the direction of Washington, and this in itself should have led them to take decided steps to secure the Shenandoah Valley if only as a precautionary measure.

We can now return to our study of the military operations. When General Jackson took over command of the valley army, the Federals had gained possession of all the country north of the Great Kanawha River and west of the Alleghanies, and has even penetrated as far east of the main range as Romney and Bath, both of which places were occupied by their forces, the former place alone being held by 5,000 men. These troops were supplied by the Baltimore and Ohio Railway, supplemented by the Chesapeake and Ohio Canal for the 40 miles or so, from Harper's Ferry to Hancock, which had been rendered useless by the Confederates. Jackson, whose forces consisted of some 2,000 to 3,000 militia, at once conceived a bold plan of operations against the Federals in the West. Realizing the difficulty of acting in the inaccessible country west of Staunton, he proposed to move along the Baltimore and Ohio Railway and parallel roads, and entering West Virginia from the North East, not only to turn the enemy's left, but also to cut his line of communication, thus manœuvring him out of his positions, or forcing him to fight in circumstances of Jackson's choosing. For the purpose of such a movement he asked that his original (Stonewall) brigade from Manassas and all the Confederate troops south-west of Winchester should be concentrated under his command, thus giving him from 15,000 to 16,000 troops. To this, however, the Confederate authorities considered it impossible to accede. By the middle of November Jackson's original brigade was sent to him from Manassas; one of General Loring's brigades arrived early in December; and two more brigades, under General Loring himself, reached Jackson about Xmas. His force now amounted to about 11,000 men. The enemy opposed to him were disposed somewhat as follows. Some 16,000 men formed the Vth Corps under Banks, the greater part of whom were in winter quarters at Frederick, while the remainder guarded the Potomac from Harper's Ferry to Williamsport. Another 22,000 men under Rosencrans, who had been scattered over Western Virginia, had been gradually concentrated by their Commander on the Baltimore and Ohio Railway with a view to a sudden rush on Winchester.

On the 1st January 1862 Jackson set out from Winchester for Bath; he had with him 8,000 or 9,000 men, including Asbhy's regiment of cavalry and five batteries of artillery. He hoped that, by dispersing the Federal forces at Bath and Hancock, he would destroy communication between Banks and Kelly, who was commanding at Romney, and that he would thus force the latter to evacuate Romney or fight single-handed. The troops met with cold and severe weather, and on the night of the 4th, after capturing Bath with but slight opposition, bivouacked opposite Hancock. Foiled, however, in his attempt to take the latter place by a *coup de main*, and since it was probable that reinforcements would very shortly render its capture impracticable, Jackson, on the morning of the 7th, after destroying all the captured stores which he could not transport, turned towards Romney. A halt had,

however, to be made at Unger's store from the 8th till the 13th to rough-shoe the horses. On the 13th the march was resumed, and on the evening of the next day Romney was found evacuated. Jackson's next endeavour was to destroy the Baltimore and Ohio Railway bridge over the Potomac near Cumberland so as to interrupt the line of communication by which the Federal forces at Williamstown and Frederick drew the greater part of their supplies from the West. This undertaking, however, he had to abandon. The sufferings which his troops had undergone from the cold during the march from Winchester had sapped their lately acquired discipline and he found it impossible to proceed. He returned to Winchester on the 24th January, leaving Loring's force to occupy Romney. The result of this short movement was that—"In two weeks and with trifling loss, he had placed the troops opposed to him while preparing for an aggressive movement upon the defensive; had expelled them virtually from his whole district; had liberated three countries from their rule and secured the supplies in them for the subsistence of his own troops." Jackson's manœuvres in this movement are open to severe criticism, to which indeed they have been subjected more than once. While he was at Romney, a force of Federals as large as, or larger than, his whole combined force might have moved from Williamsport and Harper's Ferry and cut him off from Winchester. On the other hand, however, Jackson, it is said, knew that Banks was not the man to run the risks, and that no preparations for crossing the Potomac—a difficult obstacle—had been made.

On the 31st January Jackson, in accordance with a peremptory order from the Secretary of War issued on the plea that information received indicated that a Federal movement was being made to cut Loring off, recalled the latter's force from Romney. In this way the whole results of the expedition were lost, for the Federals shortly re-occupied all the territory which had been taken from them. In reality this order was due to discontent among Loring's troops and is a good example of the evil effects of interference in the plans of a General in the field by an inept statesman ignorant of things military. Jackson's manners and sternness had made him unpopular with Loring's troops, who complained that they had been left in an exposed and dangerous position, and insinuated that Jackson had shown favouritism in not leaving the Stonewall brigade behind instead of them. As a matter of fact, it is clear that Jackson had carefully weighed the dangers of the position, and had considered the weather, state of the roads and condition of the Federal troops such as to prohibit any attempt on their part to cut off Loring, at any rate without his having received due and timely warning. The reason that Loring's troops had been selected to remain there was that they formed the largest unit of Jackson's force. Jackson was so indignant at this interference with his orders that he resigned his command. Ultimately, however, he was induced to withdraw this resignation on an urgent representation from his friends that the loss of his services would be a great blow to the cause of the South.

During the month of February the valley army were left in peace, though in other parts of the theatre of war things were going badly

with the Confederate cause. It became evident that it would be impossible to hold the entrenchments at Centreville and Manassas against the masses of the army of the Potomac, and, when, in the last week of February, arrangements were made for the evacuation of these places, Jackson also received orders to retire from Winchester. The Federals had, in the meantime, ordered Banks' and Lander's commands to cover the rebuilding of the Baltimore-Ohio Railway between Harper's Ferry and Hancock, and to take and hold Winchester and Strasburg: Banks, however, advanced but slowly: Martinsburg was occupied only on the 3rd March, and Bunker Hill and Smithfield on the 6th. The Confederates at Centreville and Manassas began their withdrawal to behind the line of the Rappahannock on the 7th March and completed it on the 11th.

Jackson, meanwhile, remained at Winchester, watching closely the advance of Banks and doing what was possible to impede it. After it had become evident that the valley was to be invaded by some 30,000 Federals, to stop whom Jackson's force of some 4,600 men was obviously insufficient, instructions were issued to the latter that he was to endeavour to employ the invaders in the valley, but without exposing himself to the dangers of defeat, by keeping so near the enemy as to prevent him from making any considerable detachment to reinforce McClellan (in the latter's advance against Richmond), but not so near that he might be compelled to fight. A sufficiently difficult task, but one, which we shall see, was not beyond Jackson's capabilities. The nearest Confederate infantry to Jackson were 60 miles distant in a south-easterly direction at Culpepper Court House.

The force under Jackson, called the Army of the Valley, was composed as under:—

1st Brigade (Stonewall)—Brigadier-General Garnett.	{ 2nd Virginia Regiment.		
	4th	"	"
	5th	"	"
	27th	"	"
2nd Brigade—Colonel Burk	33rd	"	"
	{ 21st		
	42nd	"	"
	48th	"	"
	1st Regular Battalion (Irish).		
3rd Brigade—Colonel Fulkerson	{ 23rd Virginia Regiment.		
	27th	"	"
Ashby's regiment of cavalry.			
Six batteries (of 27 guns in all).			

In Ashby's cavalry Jackson had a splendid body of scouts, and although greatly out-numbered by the Federal cavalry, in everything else the Virginian cavalry were immeasurably superior to them. In Banks, moreover, Jackson had an adversary, not only entirely ignorant of soldiering, but who was in addition over-cautious and wanting in energy.

From the 7th to the 11th Jackson offered battle to Banks in several positions north of Winchester. No attack, however, was made by the Federals, who, impressed by the activity of Ashby's cavalry and the boldness with which Jackson maintained his position, imagined him to be much stronger than he was. The Federal left, however, was pushed gradually forward, and on the 11th occupied Berryville, thus forcing Jackson to retire. Banks occupied Winchester on the 12th, and on the same day the Confederates reached Strasburg, where they halted till the 15th. Shield's division of Banks' army entered Strasburg on the 19th, Jackson, who hoped to draw Banks up the valley, having already fallen back to Woodstock and Mount Jackson.

About this time, McClellan commenced to put into force his scheme to transport a large portion of the army of the Potomac, by sea, to attack Richmond by an advance between the York and James Rivers. Considering Jackson's force of 4,600 men, powerless for harm, McClellan ordered Banks to leave Shield's division to protect Harper's Ferry, the Baltimore and Ohio Railway and the Chesapeake Canal, and with his remaining force to move at once to Manassas to cover the approaches to Washington, east of the Blue Ridge.

On the evening of the 21st Ashby reported to Jackson that the enemy was retreating. Ashby himself followed the enemy, and on the 22nd struck Shield's pickets about a mile south of Winchester. Jackson's troops marched on the 22nd; the 3rd brigade from Woodstock and 1st and 2nd brigades from Mount Jackson, the whole camping together at Strasburg that evening. On the 22nd Shield's whole division was still in Winchester, but he took steps to conceal the fact with the result that Ashby reported to Jackson that only four regiments of infantry with a few guns and cavalry remained at Winchester, and that they were under orders to move to Harper's Ferry the next morning. On the 23rd Jackson's whole force reached the neighbourhood of Kernstown, the line of the Federal outposts: on arrival here at about one o'clock Jackson, finding his troops very weary, first gave orders for bivouacking. In his report he says—

"But subsequently ascertaining that the Federals had a position from which our forces could be seen, I concluded that it would be dangerous to postpone the attack until the next day, as reinforcements might be brought up during the night." In the light of Jackson's information of the enemy there can be little doubt that he was right; but his information was wrong, and instead of only four battalions of infantry, he had Shield's whole division to deal with.

From early in the morning of the 24th Ashby was skirmishing actively, and with the aid of Jackson's advanced guard, which arrived at 10 A.M., he drove the enemy's skirmishers before him on both sides

of the valley turnpike. Colonel Kimball, commanding Shield's 1st brigade, shortly checked this movement, however, sending forward skirmishers from two battalions, supported on their right by a battery on Pritchard's Hill, and on their left by the 2nd brigade (Sullivan's) with several batteries. These soon forced Ashby to retire.

Now to glance at the field of battle. The country resembles many of the features of an English landscape, low ridges, covered with open woods of oak and pine, overlook green pastures and scattered houses; and the absence of hedge-rows and cottages gives a park-like aspect to the broad acres of rich 'blue grass.' The valley and Cedar Creek turnpikes were the only two roads in the real sense of the word: the others were mere unmetalled country tracks deep in mud. The country was open and undulating and offered few obstacles to the movements of artillery and cavalry: at the same time part of the country was under plough and damp from moisture, and marching was most difficult.

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These movements of Jackson's had revealed his danger to Kimball. Tyler's brigade, which had reached the Tollgate, north of Kernstown, about 2 P.M., was ordered to attack the Confederate left. Moving along the Cedar Creek turnpike, he deployed to the south along the ridge just in time to meet Jackson's advancing infantry, whom he attacked vigorously, but by whom he was everywhere repulsed. Kimball, however, who recognised that Ashby's attack was a mere demonstration, was hurrying further reinforcements from his own and Sullivan's brigades to his assistance, leaving a couple of battalions and a battery to hold the valley turnpike. With this additional force against him, Garnett, on whose troops the brunt of the attack had fallen, felt himself unable to maintain the position longer and gave the order to retire. Jackson, in the meantime, had ordered the 5th and 42nd Virginias to the ridge and had sent back to the 48th Virginia, who were with the baggage, to hurry forward. The order to retire had been given without reference to Jackson, and Garnett had further sent back word to the Colonel of the 5th Virginia to occupy a position behind on which the retiring fighting line might rally. Thus Garnett's retirement took Jackson by surprise, who, so soon as he realised what had occurred, tried to rally his old brigade: failing in this, he conceived the idea of a vigorous and sudden counterstroke delivered by the 5th and 42nd Virginias, which he hoped might yet change the issue of the day. Here again was he doomed to disappointment. Galloping back to meet these reinforcements he found the 5th, in accordance with Garnett's orders, had already taken post to the rear. Meanwhile Fulkerson, whose right and rear were exposed by Garnett's retreat, was obliged to retire also, and the Federals made a fresh and vigorous onslaught from Pritchard's Hill. The opportunity for the counterstroke had passed and the battle was lost.

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cavalry was held in check by Funsten, and their infantry had had enough of fighting; and the Confederates, with the exception of Ashby, who halted at Bartonsville, fell back to the vicinity of Newtown.

The loss of the Confederates was 80 killed, 342 wounded and 269 missing and taken prisoner; total 691; two pieces of their artillery left on the field, disabled, were also captured. The Federal's loss amounted to 103 killed, 441 wounded and 34 missing; total 598.

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In this respect Jackson's expectations were more than realized. Shield was forced to believe that Jackson expected reinforcements and had sent express after Williams' division for assistance. Banks, on his way to Washington, halted at Harper's Ferry and ordered Williams' division to Winchester. But this was not all. Lincoln, nervous about Washington, ordered Blenker's division from McClellan's force to join Fremont in West Virginia, halting at Strasburg on the way to assist Banks, if necessary. Moreover, finding that the original force proposed for Manassas was, by these movements, reduced by two brigades and considering that the security of Washington was thereby impaired, Lincoln ordered the 1st army corps of McClellan's army, numbering 37,000 strong under McDowell, to remain at Manassas. Thus McClellan, on the eve of his advance on Richmond, found his original force, 150,000, reduced by 46,000 officers and men. Further, McDowell and Banks were withdrawn from McClellan's control and given independent commands, covering the approaches to Washington and defending the Shenandoah Valley respectively. As a result of all this, the Federal forces were now disseminated into four distinct armies—McClellan's, McDowell's, Fremont's, all of them being dependent for co-operation on the orders of Banks and two civilians—the President and his Secretary for War!

This battle has been much criticised. It has been said that Jackson attacked without sufficient information and with tired troops; it has also been said that he disobeyed his instructions. We will now proceed to examine these criticisms. Jackson's information, almost uniformly reliable, was undoubtedly at fault in this instance. Shields, having ascertained the day before the battle from deserters or prisoners, that Jackson believed he had only a rear-guard to deal with, took the greatest trouble to conceal his real numbers. It is to be remembered, however, that he forthwith sent for reinforcements, and had Jackson waited till next day, as his critics consider he should have done, he would have had even larger numbers to face. Then, again, time was of much importance to the Confederates. McClellan was within two or three days' march of the Confederate position behind the Rapidan, and if Jackson was to create a diversion, it had to be done quickly. Whether Jackson had realized that even a defeat would affect his object, it seems impossible to say, and we can only judge

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The tactical handling of the troops in the battle itself was above praise. Jackson himself considers that Garnett's retirement robbed him of victory, and he deprived that General of his command shortly afterwards in consequence. Of Garnett's splendid courage there is no lack of evidence; as to his judgment in this particular occurrence, there is much difference of opinion; the officers of his own brigade considered him quite justified in what he did; he was aware that reinforcements were on their way and yet he acted as he did. Whether these reinforcements would have been sufficient to turn the scale of victory, as Jackson supposed and considered they would do, it is impossible to say.

After the battle the retirement of the Confederates was unmolested, and by the night of the 26th March the main body of Jackson's force had reached Mount Jackson with Burk's brigade at Woodstock, and Ashby's cavalry along the south bank of Tom's Brook, 17 miles from Kernstown. The Federals, impressed by the fighting at Kernstown, estimated Jackson's force at 15,000 strong. Banks, who had by this time arrived, preferred to await Williams' two brigades before moving, and his cavalry were useless in pursuit, as they were incapable of moving across country. Consequently it was not till the 26th that his outposts got in touch with Ashby's cavalry. Banks had now 19,000 men, but still he remained inactive, though pressed by McClellan to pursue vigorous action; and not till the 2nd April did he advance further, when his advanced guard, after a skirmish with Ashby, reached Edenburg, while his main body occupied Woodstock. From the 4th April Banks was assigned the independent command of the Federal forces in the valley.

Jackson, on the 2nd April, took up a strong position, 2½ miles south of Mount Jackson on Rude's Hill, which is covered by Mill Creek and the North Fork of the Shenandoah. Ashby held the line of Stony Creek by Edenburg, where he was reinforced by a brigade of infantry and a section of artillery. Banks was in difficulties over supply and transport arrangements; the weather was bad with much snow and rain, rendering all the roads, except the turnpikes, very heavy and deep; and it was not till the 17th April that he made any forward movement. In the meantime Jackson's command had greatly improved in numbers and spirits, and by the 15th April had increased to 6,000 men. Banks' situation at this time was most uncomfortable. The Massanuttons, which separate the two branches of the Shenandoah for 50 miles, are a gigantic mass of narrow mountain ridges passable only at one point where the road from New Market to Luray crosses them. The valley of the South Fork, therefore, gave the Confederates a covered approach against Banks' line of communication. From Luray, moreover, good roads led to the east of the Blue Ridge, whence Jackson could hope to draw reinforcements. Banks also feared for his right. Fremont, who was contemplating an advance on Staunton, had his nearest force 30 miles from Woodstock,

separated from it by a succession of rugged ridges, which might also cover an attack by the Confederate horsemen against Banks' rear. The latter had, therefore, to guard his communications strongly, and this reduced his effective strength for battle. Henderson criticises Banks' inactivity very strongly, and points out how, if he had occupied New Market as McClellan urged him to do, he would have escaped from his unfavourable position. It seems certain that not even the bad weather and his transport difficulties could have seriously interfered with such a short movement.

On the 17th April Banks advanced and, after surprising and capturing some of Ashby's cavalry, occupied Mount Jackson. This movement rendered the position of the valley army somewhat critical. Ewell, with 8,000 Confederates, was on the Upper Rappahannock, and with this force Jackson had been instructed to co-operate. Banks, with the road across the Massanutts in his possession, could occupy Swift Run Gap and cut communication between the two Confederate forces. To secure this pass Jackson, on the 17th April, called on his men for a forced march. They reached Harrisonburg on the morning of the 18th and halted at Peales, 6 miles east of Harrisonburg, the same evening. On the 19th they crossed the Shenandoah at Conrad's store, and, leaving a detachment to hold the bridge, moved to the foot of Swift Run Gap and went into camp in Elk Run Valley. Banks followed cautiously. On the 19th a detachment of his seized the bridges over the South Fork at Luray, driving back some cavalry which Jackson had sent to burn them; and on the 22nd his cavalry reached Harrisonburg, whither, on the 26th, he sent two of his brigades.

General Edward Johnson, commanding the Confederate forces, amounting to some 3,000 men, on the Shenandoah Mountain, menaced in the rear by Banks' advance, in flank by the brigade Fremont had placed at Moorefield, and in front by Milroy's brigade, which had advanced from Monterey, had fallen back to 7 miles west of Staunton on the 24th. Milroy at McDowell and Banks at Harrisonburg appeared to have Staunton at their mercy. Jackson, it is true, threatened the flank of the latter from Elk Run, but Banks, by holding the brigade at Conrad's store with a strong detachment, could have marched on Staunton in combination with Milroy with little danger. Banks, however, was over-cautious; moreover, he and Fremont were prevented from working together by the Secretary of War at Washington, who, on the 26th, wrote to Banks forbidding a further advance south, as it was contemplated to transfer Shield's division to McDowell's army corps. Finally, Blenker's division at Winchester, instead of being sent to support Banks, was ordered to join Fremont *en Romney*! Now to glance at the theatre of war in the East: McClellan had landed on the Yorktown Peninsula, but was stopped by the lines of trenches at Yorktown; McDowell was moving on Fredericksburg where he was to be joined by Shield, the fall of Yorktown was being the signal for his advance on Richmond.

About this time General Lee was entrusted with the control of all the Confederate operations in Virginia. On the 21st April Jackson

received a letter from Lee, foreseeing the Federal attack on Fredericksburg, and asking Jackson whether he could use Ewell's division in an attack on Banks to relieve the pressure on Fredericksburg. Jackson and Ewell had already been in correspondence; and, on the 26th, when Banks moved two more brigades to Harrisonburg, Ewell was ordered to Stanardsville, 12 miles south-east of Swift Run Gap. On the 28th Jackson asked Lee if reinforcements could be sent him from Fredericksburg, and again wrote on the 29th suggesting three plans of action. Lee, in answering Jackson's letter of the 28th, said that he could give him no more help, but suggested his using the forces under General Edward Johnson. On the receipt of this Jackson put his troops into motion. Lee answered his second letter on the 1st May, leaving the selection of plans to Jackson.

On April 29th Ashby made a demonstration towards Harrisonburg, and on the 30th he drove the Federal cavalry back on to their camps; the same afternoon Jackson with 6,000 men left Elk Run Valley, which was immediately occupied by Ewell with 8,000 men and marched to Port Republic, but, owing to the impassable state of the roads, his force only covered 5 miles. For the next two days it rained continuously, and the whole force were occupied in helping the guns and wagons through the quicksands and mud. On the night of the 2nd May the force, having turned aside before entering Port Republic, bivouacked at the foot of Brown's Gap. The next day was fine and the force marched, much to the bewilderment of all, since Jackson confided in none but his Adjutant-General, to the east over Brown's Gap and then south to Mechums River Railway Station. From here, on the 4th May, the artillery and wagons moved by road, and the infantry by rail, to Staunton, where, by the 5th, the whole division had arrived. The 6th was spent in giving the troops a rest, in getting information and making arrangements for the onward march. On the 6th Johnson's division marched westwards towards the Alleghanies, followed by Jackson's force on the 7th; and that evening they bivouacked together, 10 miles west of Staunton.

Let us now turn to Banks. He at first assumed that Jackson had left for Richmond and went so far as to report to Washington that his (Banks' force) was no longer required in the valley. On the 3rd, however, his information was that Ewell was at Swift Run Gap with 12,000 men, and that Jackson was still near Port Republic; on the 5th, believing that Jackson had marched to Harrisonburg, the Federals fell back to New Market, and on the 7th Banks still believed Jackson to be at Harrisonburg.

Jackson's choice of line of march to Staunton was the cause of much bewilderment to his own officers. It was asked why he should choose the terrible road to Port Republic, when, by using the longer but metalled road from Elk Run to Gordonsville, his command would have arrived at Staunton just as soon and less tired. It has also been pointed out that he laid himself open to attack on the road he used, if not to an attack by Banks over the bridge, then from artillery which could easily have shelled him from the west bank of the river. In discussing this we must consider the objects Jackson had

of the valley turnpike. Colonel Kimball, commanding Shield's 1st brigade, shortly checked this movement, however, sending forward skirmishers from two battalions, supported on their right by a battery on Pritchard's Hill, and on their left by the 2nd brigade (Sullivan's) with several batteries. These soon forced Ashby to retire.

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him by results. As to his disobedience of orders: he took the responsibility; he was in an independent command, and the result justified his judgment: what more could he required?

The tactical handling of the troops in the battle itself was above praise. Jackson himself considers that Garnett's retirement robbed him of victory, and he deprived that General of his command shortly afterwards in consequence. Of Garnett's splendid courage there is no lack of evidence; as to his judgment in this particular occurrence, there is much difference of opinion; the officers of his own brigade considered him quite justified in what he did; he was aware that reinforcements were on their way and yet he acted as he did. Whether these reinforcements would have been sufficient to turn the scale of victory, as Jackson supposed and considered they would do, it is impossible to say.

After the battle the retirement of the Confederates was unmolested, and by the night of the 26th March the main body of Jackson's force had reached Mount Jackson with Burk's brigade at Woodstock, and Ashby's cavalry along the south bank of Tom's Brook, 17 miles from Kernstown. The Federals, impressed by the fighting at Kernstown, estimated Jackson's force at 15,000 strong. Banks, who had by this time arrived, preferred to await Williams' two brigades before moving, and his cavalry were useless in pursuit, as they were incapable of moving across country. Consequently it was not till the 26th that his outposts got in touch with Ashby's cavalry. Banks had now 19,000 men, but still he remained inactive, though pressed by McClellan to pursue vigorous action; and not till the 2nd April did he advance further, when his advanced guard, after a skirmish with Ashby, reached Edensburg, while his main body occupied Woodstock. From the 4th April Banks was assigned the independent command of the Federal forces in the valley.

Jackson, on the 2nd April, took up a strong position, 2½ miles south of Mount Jackson on Rude's Hill, which is covered by Mill Creek and the North Fork of the Shenandoah. Ashby held the line of Stony Creek by Edensburg, where he was reinforced by a brigade of infantry and a section of artillery. Banks was in difficulties over supply and transport arrangements; the weather was bad with much snow and rain, rendering all the roads, except the turnpikes, very heavy and deep; and it was not till the 17th April that he made any forward movement. In the meantime Jackson's command had greatly improved in numbers and spirits, and by the 15th April had increased to 6,000 men. Banks' situation at this time was most uncomfortable. The Massanuttons, which separate the two branches of the Shenandoah for 50 miles, are a gigantic mass of narrow mountain ridges passable only at one point where the road from New Market to Luray crosses them. The valley of the South Fork, therefore, gave the Confederates a covered approach against Banks' line of communication. From Luray, moreover, good roads led to the east of the Blue Ridge, whence Jackson could hope to draw reinforcements. Banks also feared for his right. Fremont, who was contemplating an advance on Staunton, had his nearest force 30 miles from Woodstock,

separated from it by a succession of rugged ridges, which might also cover an attack by the Confederate horsemen against Banks' rear. The latter had, therefore, to guard his communications strongly, and this reduced his effective strength for battle. Henderson criticises Banks' inactivity very strongly, and points out how, if he had occupied New Market as McClellan urged him to do, he would have escaped from his unfavourable position. It seems certain that not even the bad weather and his transport difficulties could have seriously interfered with such a short movement.

On the 17th April Banks advanced and, after surprising and capturing some of Ashby's cavalry, occupied Mount Jackson. This movement rendered the position of the valley army somewhat critical. Ewell, with 8,000 Confederates, was on the Upper Rappahannock, and with this force Jackson had been instructed to co-operate. Banks, with the road across the Massanuttons in his possession, could occupy Swift Run Gap and cut communication between the two Confederate forces. To secure this pass Jackson, on the 17th April, called on his men for a forced march. They reached Harrisonburg on the morning of the 18th and halted at Peales, 6 miles east of Harrisonburg, the same evening. On the 19th they crossed the Shenandoah at Conrad's store, and, leaving a detachment to hold the bridge, moved to the foot of Swift Run Gap and went into camp in Elk Run Valley. Banks followed cautiously. On the 19th a detachment of his seized the bridges over the South Fork at Luray, driving back some cavalry which Jackson had sent to burn them; and on the 22nd his cavalry reached Harrisonburg, whither, on the 26th, he sent two of his brigades.

General Edward Johnson, commanding the Confederate forces, amounting to some 3,000 men, on the Shenandoah Mountain, menaced in the rear by Banks' advance, in flank by the brigade Fremont had placed at Moorefield, and in front by Milroy's brigade, which had advanced from Monterey, had fallen back to 7 miles west of Staunton on the 20th. Milroy at McDowell and Banks at Harrisonburg appeared to have Staunton at their mercy. Jackson, it is true, threatened the flank of the latter from Elk Run, but Banks, by holding the brigade at Conrad's store with a strong detachment, could have marched on Staunton in combination with Milroy with little danger. Banks, however, was over-cautious; moreover, he and Fremont were prevented from working together by the Secretary of War at Washington, who, on the 26th, wrote to Banks forbidding a further advance south, as it was contemplated to transfer Shield's division to McDowell's army corps. Finally, Blenker's division at Winchester, instead of being sent to support Banks, was ordered to join Fremont *via* Romney! Now to glance at the theatre of war in the East: McClellan had landed on the Yorktown Peninsula, but was stopped by the lines of trenches at Yorktown; McDowell was moving on Fredericksburg, where he was to be joined by Shield, the fall of Yorktown was being the signal for his advance on Richmond.

About this time General Lee was entrusted with the control of all the Confederate operations in Virginia. On the 21st April Jackson

received a letter from Lee, foreseeing the Federal attack on Fredericksburg, and asking Jackson whether he could use Ewell's division in an attack on Banks to relieve the pressure on Fredericksburg. Jackson and Ewell had already been in correspondence; and, on the 26th, when Banks moved two more brigades to Harrisonburg, Ewell was ordered to Stanardsville, 12 miles south-east of Swift Run Gap. On the 28th Jackson asked Lee if reinforcements could be sent him from Fredericksburg, and again wrote on the 29th suggesting three plans of action. Lee, in answering Jackson's letter of the 28th, said that he could give him no more help, but suggested his using the forces under General Edward Johnson. On the receipt of this Jackson put his troops into motion. Lee answered his second letter on the 1st May, leaving the selection of plans to Jackson.

On April 29th Ashby made a demonstration towards Harrisonburg, and on the 30th he drove the Federal cavalry back on to their camps; the same afternoon Jackson with 6,000 men left Elk Run Valley, which was immediately occupied by Ewell with 8,000 men and marched to Port Republic, but, owing to the impassable state of the roads, his force only covered 5 miles. For the next two days it rained continuously, and the whole force were occupied in helping the guns and wagons through the quicksands and mud. On the night of the 2nd May the force, having turned aside before entering Port Republic, bivouacked at the foot of Brown's Gap. The next day was fine and the force marched, much to the bewilderment of all, since Jackson confided in none but his Adjutant-General, to the east over Brown's Gap and then south to Mechums River Railway Station. From here, on the 4th May, the artillery and wagons moved by road, and the infantry by rail, to Staunton, where, by the 5th, the whole division had arrived. The 6th was spent in giving the troops a rest, in getting information and making arrangements for the onward march. On the 6th Johnson's division marched westwards towards the Alleghanies, followed by Jackson's force on the 7th; and that evening they bivouacked together, 10 miles west of Staunton.

Let us now turn to Banks. He at first assumed that Jackson had left for Richmond and went so far as to report to Washington that his (Banks' force) was no longer required in the valley. On the 3rd, however, his information was that Ewell was at Swift Run Gap with 12,000 men, and that Jackson was still near Port Republic; on the 5th, believing that Jackson had marched to Harrisonburg, the Federals fell back to New Market, and on the 7th Banks still believed Jackson to be at Harrisonburg.

Jackson's choice of line of march to Staunton was the cause of much bewilderment to his own officers. It was asked why he should choose the terrible road to Port Republic, when, by using the longer but metalled road from Elk Run to Gordonsville, his command would have arrived at Staunton just as soon and less tired. It has also been pointed out that he laid himself open to attack on the road he used, if not to an attack by Banks over the bridge, then from artillery which could easily have shelled him from the west bank of the river. In discussing this we must consider the objects Jackson had

in view, which were (i) to combine with Edward Johnson, (ii) to prevent the Federals combining by keeping Banks stationary and not defeating Milroy, (iii) to protect Staunton. By restricting his absence from the valley to the shortest possible time Jackson kept Banks from advancing against Staunton, or combining with Milroy, which were the real dangers he had to guard against. Jackson knew Banks well, and had no reason to apprehend an attack from him during the march to Port Republic. From Port Republic the march east and south was to deceive Milroy more than Banks, as the former would have heard of Jackson's movements had he gone direct to Staunton from Port Republic and surprise would have been out of the question. From Port Republic to Staunton *via* Mechums River was little more than two days' march; it would be some little time before Banks heard of this move, when he would probably, as was his wont, move cautiously, and even then he had 25 miles to march to reach Staunton. So that Jackson could reasonably hope to combine with Johnson in time, even were Banks to advance at once. Results shewed that Jackson's suppositions were fully justified. Ashby did his work well, and Banks had no idea of what was really happening till too late.

On the 7th May the Confederate advanced guard under Johnson came in contact with Milroy's outposts, part of which he captured, driving back the remainder. On the same day Milroy learnt that Jackson and Johnson had combined and were advancing to attack him. He sent back at once for reinforcements, and at 10 A.M. the next day Schenk's brigade, his nearest support, arrived from Franklin, 34 miles off. On May 8th Jackson's force arrived in sight of McDowell, when Schenk and Milroy at once attacked with a view to gaining time for retreat. The Federals fought with vigour for some four hours; when out-numbered and repulsed at all points, they fell back in perfect order under cover of night. There is little in the tactics of this battle to repay study, so that a description of it need not be given. Jackson has been blamed for not having made a vigorous counter-stroke in this fight with the object of destroying the attacking force, which was much inferior to him in numbers. Jackson, however, did not wish to lose men in gaining a decisive victory which would not affect the end he had in view, which was to attack and defeat Banks when the latter could not be reinforced. His ultimate object in doing so being to make the authorities in Washington fear for their own safety, and thus to cause them to withdraw men from the threatened attack on the Fredericksburg-Richmond line, which would of itself seriously affect McClellan's plans. If he could succeed in driving Fremont's forces back, thus preventing a junction with Banks, before he himself could attack the latter, that was all Jackson wished for; and to do more, at a risk of losing men whom he required, would have been a mistake. On the night of the fight at McDowell Jackson sent Captain Hotchkiss with a squadron of cavalry to block the passes by which Fremont could join Banks. This they did with excellent effect.

On the 9th, 10th and 11th the Confederates followed up the retreating Federals, but were unable to do much, as the latter set

fire to the forests on the mountain sides; a most successful measure, since, owing to the dense volume of smoke thus caused, it entailed all the disadvantages of a night attack on the Confederates. On May 12th Schenk was in a strong position at Franklin, and Fremont, with Blenker's division, was close at hand coming to his support. Jackson resolved to return to the valley, for he knew not how soon a fresh emergency at Fredericksburg or at Richmond might occasion the recall of Ewell, and thus deprive him of the power of striking an effective blow at Banks. Things had been going badly with the Confederates, and Jackson's operations were "the one gleam of brightness athwart all these clouds." Accordingly, on the 12th, the return march to McDowell was commenced, which place was reached on the 14th. On the 15th the Confederates reached Mount Lebanon, where they halted on the 16th; they camped about Mount Solon on the 17th, halting there on the 18th.

During the nineteen days about the beginning of May that these operations of Jackson had lasted important changes had taken place in the disposition of the Federal troops in North Virginia. Banks had retired to New Market on hearing of Ewell's arrival. Further, on the 12th, Shield's division left the valley for the direction of Fredericksburg; this reduced Banks' force to 9,000 men, and the latter retired to Strasburg, posting Colonel Kenly, with about 1,000 men, at Front Royal to protect the rail-road and the bridges at that place over the North and South Forks of the Shenandoah. McDowell had hitherto not been allowed to continue his advance on Richmond, but had been obliged to halt in front of Fredericksburg. On the 17th May, however, McDowell received orders that, as soon as Shield had joined him, he was to advance on Richmond and co-operate with McClellan's forces. (See map III for general situation)

The Confederates were quite aware of the serious consequences these movements threatened, and General Lee had been urging Jackson and Ewell for some time past to strike at Banks, to prevent his reinforcing McDowell, and also possibly to cause the recall of troops from the latter to his aid. Lee considered that if Ewell could not be used to strike at Banks, he should be sent to reinforce the Confederates at Fredericksburg. On the 12th May, however, he consented to Ewell's remaining at Swift Run Gap to help General Jackson's operations. On learning of Shield's movement to reinforce McDowell, he pressed on Jackson the necessity for speedy action and urged an attack on Banks, which, if successful, was to be followed up to the Potomac, to create the impression that he designed threatening that line.

On the 18th Ewell met Jackson at Mount Solon to discuss operations. It was decided that one of Ewell's brigades, Taylor's Louisianians, which constituted the bulk of his command, should join Jackson near New Market from Elk Run Valley, while the remainder of Ewell's force followed the course of the South Fork of the Shenandoah to Luray. This detachment of part of Ewell's force seems to have been made with the object of inducing Banks to believe, should information filter through to him, that the whole Confederate force was advancing on Strasburg by the main valley turnpike. Ashby's cavalry

was extended in a strong line of pickets within sight of the Federal outposts near Woodstock, cutting off all communication between Strasburg and the Upper Valley, while Ewell's cavalry held the Luray Valley, with a detachment east of the Blue Ridge.

On the 20th Jackson arrived at New Market and Ewell at Luray. Ashby was ordered to join the main body, leaving a covering force sufficient to prevent information of the Confederate movements crossing their lines.

Jackson's valley army now numbered nearly 17,000 officers and men and was organized in two divisions :—

<i>Jackson's Division</i>	... {	<i>1st (Stonewall) Brigade.</i> —General Winder, 2nd, 4th, 5th, 27th and 33rd Virginias.
		<i>2nd Brigade.</i> —Colonel Campbell, 21st, 42nd, 48th Virginias and 1st Regulars (Irish).
		<i>3rd Brigade.</i> —Colonel Taliaferro, 10th, 23rd and 37th Virginias.
		<i>Cavalry.</i> —Colonel Ashby, 7th Virginia.
<i>Ewell's Division</i>	... {	<i>Artillery.</i> —5 batteries (1 horse artillery), 22 guns.
		<i>Taylor's Brigade.</i> —6th, 7th, 8th and 9th Louisiana and Wheat's Battalion (Louisiana Tigers).
		<i>Trimble's Brigade.</i> —21st North Carolina, 21st Georgia, 15th Alabama and 16th Mississippi.
<i>Late Johnson's Force</i>	... {	<i>Elsley's Brigade.</i> —13th, 25th, 31st Virginias and 12th Georgia.
		<i>Scott's Brigade.</i> —44th, 52nd and 58th Virginias.
		<i>Maryland Line.</i> —1st Maryland.
		<i>Cavalry.</i> —General G. H. Steuart ; 2nd Virginia, Colonel Munford ; 6th Virginia, Colonel Flournoy.
		<i>Artillery.</i> —6 batteries, 26 guns.

On the 21st Jackson marched through the Masanutton Gap and camped at Luray, joining forces with Ewell. He camped at the cross-roads here—a very favourite practice of his as one tending to keep the enemy in doubt as to his next movement. On the 22nd the united

forces moved down the Luray Valley towards Front Royal, and Ewell's division, which was in advance, bivouacked at night 10 miles off that place. On the 23rd Jackson attacked and captured the majority of Kenly's force at Front Royal. Kenly's position was a tactically bad one, which was further rendered worse for the time being by Banks having withdrawn all his cavalry to Strasburg two days before. Kenly had thus been unable to patrol to any distance on the 22nd, and the security of his camp was practically dependent on the vigilance of his sentries. Jackson diverted the head of his main column to the right, about 4½ miles to the south of Front Royal, so as to attack from the south and prevent the enemy's retreat by way of Manassas Gap, while Ashby's and Flournoy's cavalry were sent to the left to cut rail and wire communication with Strasburg and prevent reinforcements being sent from there. After performing this work Flournoy was to move down the river to take the enemy in flank should he retreat towards Winchester or Strasburg. The surprise was entirely successful, and, although Kenly succeeded in holding his own for a time, he was forced to retreat towards Winchester by the appearance of the southern cavalry threatening his rear. Jackson, however, led the southern cavalry in pursuit, and a most dashing charge by Flournoy brought about the complete defeat and capture of practically the whole of Kenly's force with two rifled guns.

Jackson's dispositions in this operation are much to be admired. Had Kenly retreated on Strasburg, he would have found Ashby on his flank; and any reinforcements from Strasburg would have had to deal with Ashby before they could reach Kenly. Had the latter attempted to escape by Manassas Gap, he would have found Munford across his path. Besides all this, another party of cavalry had cut the wire between Front Royal and Washington; and a strong detachment, to the east of the Blue Ridge, had checked Federal patrols from the east and had blocked the entrance to the Gap from the direction of Manassas.

Jackson's movements took Banks, at Strasburg, entirely by surprise. Banks received information from Kenly during the day of the 23rd of the attack, but he does not appear to have put much faith in the report that the Confederates were in force. In fact, he is said to have contented himself with sending a regiment of infantry with a detachment of cavalry and a section of artillery to reinforce Kenly. He appears to have still thought that Jackson was no nearer than Harrisonburg. Later in the evening Banks received information that Kenly's force had been destroyed, whereupon he recalled the reinforcements he had sent to that officer's help. It is somewhat difficult to elucidate the point at which Banks actually made up his mind to retire upon Winchester. According to Gordon, one of Banks' brigadiers, up to 10 A.M. on the 24th Banks had decided not to move, whereas Banks himself, in his report, states that at 3 A.M. he had decided to retire and had made arrangements to do so.

In this report Banks says—"Three courses were open to us: first, a retreat across Little North Mountains to the Potomac River on the west; second, an attack on the enemy's flank on the Front Royal

road; third, a rapid movement direct upon Winchester, with a view to anticipate his occupation of the town by seizing it ourselves, and thus placing my command in communication with its original base of operations, and in the line of reinforcements by Harper's Ferry and Manningsburg, and securing a safe retreat in case of disaster. To remain at Strasburg was to be surrounded; to move over the mountain was to abandon our train at the outset, and to subject my command to flank attacks without possibility of succour; and to attack, the enemy being in such overwhelming force, could only result in certain destruction. It was, therefore, determined to enter the lists with the enemy in a race or a battle, as he should choose for the possession of Winchester, the key of the valley, and for us the position of safety."

To return to Jackson, whose operations so far had met with complete success. He had captured over 700 of the enemy with two guns, with a loss of only 40 or 50 to himself; he had seized a considerable quantity of stores, and he threatened Banks' line of retreat. Henderson says that he had no accurate information of Banks' numbers, and that these might have amounted to 12,000 to 15,000 for all he knew. He realised, however, that Banks had the three following courses open to him. He might remain at Strasburg, where he was in communication, though by a long and circuitous road, with Fremont at Franklin:—He might strike for Front Royal and escape by Manassas Gap. He might withdraw to Winchester on the night of the 23rd or the next morning. Jackson's plans for the 24th were evolved with an idea of providing for any one of these three contingencies. From a scrutiny of these, however, it will be seen that his fear of Banks advancing on Front Royal influenced Jackson's plans considerably and prevented his utilising to the full the advantages which his position on the flank of Banks' line of retreat gave him. In this, however, it is perhaps hard to blame Jackson, especially as his troops were weary from forced marching. His dispositions were as follows:—Ashby advanced from Cedarville towards Middletown, throwing out scouts on his left to prevent Banks from passing unobserved to Front Royal. These were supported by Taylor's Louisianians with some guns. Stuart, with the 2nd and 6th Virginian cavalry was despatched to Newtown to observe the movements of the enemy. Ewell, with Trimble's brigade, the 1st Maryland and two batteries, was to move towards Winchester. The remainder of the force, which had bivouacked partly at Cedarville and partly at Front Royal and 4 miles round it, was to concentrate at Cedarville and thence march on Middletown.

Stuart reached Newtown before noon and found a convoy of Federal wagons passing through. This he threw into confusion, capturing some and plundering others, when Federal infantry from Middletown arrived and drove Stuart back. This enabled the Federals to continue their retirement on Winchester. Ashby in his advance on Middletown had been checked by a Federal regiment told off for the purpose, and by the time he had driven it in all the enemy's infantry had passed. The Federal rear guard of cavalry, however, was met with and was dispersed in confusion, leaving some

200 prisoners in the hands of the Confederates, Ashby being sent in pursuit towards Winchester. A halt was made by the main body at Middletown to ascertain whether it was the Federal advanced or rear guard which had thus been caught. When it was ascertained to be the latter, the pursuit was taken up, and word was sent to Ewell, who had halted 2 miles north of Cedarville, to march on Winchester. Nearly all Ashby's troopers and a part of the infantry attached to his command stopped to plunder, and in many cases it is said that the troopers went off to their homes with the plunder they obtained. This gave Banks the time and opportunity to organize a rear guard. Jackson arrived at Newton to find that the pursuit had been arrested, and it was dusk before the Federals were beaten back from that place. Jackson, however, would not hear of halting and followed up the retreating enemy the whole night through. His march was most skilfully impeded by Lieutenant-Colonel Andrew, commanding the 2nd Massachusetts of the Federals, till, on reaching Abraham's Creek about dawn (see map II), Jackson allowed his tired men to rest. Jackson had now with him on the turnpike, for the most part south of Kernstown, his own division, supported by Scott's and Elzey's brigades and nine batteries. About a mile eastwards was Ewell, with Trimble's brigade and ten guns. This detachment had moved on Winchester the preceding evening, driving in the Federal pickets as it advanced, and had halted within 3 miles of the town.

Banks determined to fight and took up a position south of Winchester. His numbers were now about 6,500. The Federal position was skilfully selected; on the turnpike and west of it was Gordon's brigade of four regiments, with eight guns and a strong force of cavalry in reserve. Donnelly's brigade, also of four regiments, with eight guns and a few squadrons, held the Front Royal road. Jackson's plan of action was simple. His advanced guard was to hold Gordon in position; and when Ewell fell on Donnelly, a heavy column was to move round Gordon's right. This plan was carried out with entire success. The Federals contested the position bravely, but they were greatly out-numbered and were forced to retreat. The fight followed through the streets of Winchester, and the Federal flight almost became a route. At this critical moment Jackson found himself without cavalry. Ashby had been able to collect only some 50 of his men, and with these he had moved off to the enemy's left to prevent a retreat by way of Berryville to Harper's Ferry. Stuart was with Ewell, and, on receiving Jackson's message, said that he could obey no orders unless they came through his immediate superior. Two hours were wasted thus before Stuart took up the pursuit. Jackson with his infantry halted and bivouacked about 5 miles north of Winchester. Stuart followed as far as Martinsburg, 22 miles north of Winchester, but was too late and found no opportunity for attack.

"To the misconduct of Ashby's troopers, and to the pedantic folly of General Stuart, the escape of the Federal Army must be attributed," writes Henderson, while Jackson in his report says—"Never have I seen an opportunity when it was in the power of cavalry to reap a richer harvest of the fruits of victory. Had the cavalry played its part in this pursuit as well as the four companies under

tion, and Shield's cavalry arriving at Luray and Conrad's store on the 4th found themselves forestalled.

The Federals took up the pursuit with vigour, and on the 2nd and 3rd June sharp skirmishing took place. On the 3rd the Confederates retreated to Mount Jackson. On the 4th they burnt the bridge over the North Fork in their retirement and thus checked the pursuit for a day. Jackson sent his sick and wounded to Staunton, and on the 5th bivouacked, with the greater part of his force, at Cross Keys. On the 6th the Federals again got in touch with Ashby's cavalry, and a sharp fight occurred on that day, the Federals, however, being driven back to Harrisonburg. Ashby was killed during the engagement and his death was a great loss to the Confederates. Jackson wrote of him—"The close relation General Ashby bore to my command for most of the previous twelve months will justify me in saying that, as a partisan officer, I never knew his superior. His daring was proverbial, his powers of endurance almost incredible, his character heroic, and his sagacity almost intuitive in discerning the purposes and movements of the enemy."

On the 6th and 7th June the Confederates rested near Cross Keys. Shield, on the 6th, thinking that Jackson's force were demoralised and that they offered an easy prey, threw precaution to the winds and, regardless that his forces were much split up, determined to advance as rapidly as possible to Port Republic to 'finish Jackson' in combination with Fremont.

The situation was now as follows:—Shield was stretched out over 25 miles of road in the South Fork Valley; Fremont was at Harrisonburg; Ewell's division was near Cross Keys, while Jackson's main body was near Port Republic. Henderson describes Jackson's position at Port Republic thus (see map IV) —

- "1. The South Fork of the Shenandoah is formed by the junction of two streams—the North and South Rivers; the village of Port Republic lying on the peninsula between the two.
2. The bridge crosses the North River just above the junction, carrying the Harrisonburg road into Port Republic; but the South River, which cuts off Port Republic from the Luray Valley, is passable only by two difficult fords.
3. North of the village, on the left bank of the Shenandoah, a line of high bluffs, covered with scattered timber, completely commands the tract of open country which lies between the river and the Blue Ridge, and across this tract ran the road by which Shield was marching.
4. Four miles north-west of Port Republic, near the village of Cross Keys, the road to Harrisonburg crosses Mill Creek, a strong position for defence.

By transferring his army across the Shenandoah, and burning the bridge at Port Republic, Jackson could easily have escaped Fremont,

and have met Shield in the Luray Valley with superior force. But the plain, where the battle must be fought, was commanded by the bluffs on the left bank of the Shenandoah; and should Fremont advance while an engagement was in progress, even though he could not cross the stream, he might assail the Confederates in flank with his numerous batteries. In order, then, to gain time in which to deal with Shield, it was essential that Fremont should be held back, and this could only be done on the left bank. Further, if Fremont could be held back until Shield's force was annihilated; the former would be isolated. If Jackson could hold the bridge at Port Republic, and also prevent Fremont reaching the bluffs, he could recross when he had done with Shield, and fight Fremont without fear of interruption.

To reverse the order, and to annihilate Fremont before falling on Shield, was out of the question. Whether he advanced against Fremont, or whether he stood still to receive his attack, Jackson's rear and communications, threatened by Shield, must be protected by a strong detachment. It would thus be impossible to meet Fremont with superior or even equal numbers, and an army, weaker in the battle-field, could not make certain of decisive victory."

On June 8th, however, Fremont advanced, and at 8-30 A.M. became engaged with Ewell's pickets. Ewell had at this time 6,000 infantry, 500 cavalry and 5 batteries, while Fremont had at least 10,000 infantry, 2,000 cavalry and 12 batteries. Jackson was then at Port Republic, and was just starting to ride to Cross Keys, when a messenger suddenly brought him the news that Shield's force had surprised the cavalry pickets and were already fording the South River. For a short time the situation was critical. But Jackson, acting with great vigour, succeeded in driving back the force in question, which evidently was not Shield's main body. Then placing two brigades in position to guard the bridge against any further portion of Shield's force, Jackson sent the remainder of his force to Ewell, and himself rode to the scene of action.

Ewell's force was posted along the crest of a narrow ridge with Mill Creek parallel to, and in front of, his position, which was thus a strong one. Fremont, as will be seen below, acted with great indecision. After the artillery preparation, only 5 regiments, out of 24 present, were sent forward against the Confederate's right. These were repulsed and were followed up by the Confederate's right under Trimble, who made a vigorous counter-stroke, and threw back the Federal left in disorder. Meanwhile in the centre the Federal skirmishers had been routed by a bayonet charge; while on the Federal right Milroy and Schenk, acting on their own initiative, had obliged Ewell to strengthen his position from his reserves, when they were recalled by Fremont, alarmed by Trimble's vigorous attack, to defend the main position.

Jackson could not afford, however, to press the advantage thus gained, as he had still Shield to deal with; and since it was evident that Fremont was not likely to assume a vigorous offensive, the Confederates contented themselves with following up slowly till darkness fell and put an end to the fight.

was extended in a strong line of pickets within sight of the Federal outposts near Woodstock, cutting off all communication between Strasburg and the Upper Valley, while Ewell's cavalry held the Luray Valley, with a detachment east of the Blue Ridge.

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		<i>Scott's Brigade</i> .—44th, 52nd and 58th Virginias.
		<i>Maryland Line</i> .—1st Maryland.
		<i>Cavalry</i> .—General G. H. Stuart; 2nd Virginia, Colonel Munford; 6th Virginia, Colonel Flournoy.
		<i>Artillery</i> .—6 batteries, 26 guns.

On the 21st Jackson marched through the Masanutten Gap and camped at Luray, joining forces with Ewell. He camped at the cross-roads here—a very favourite practice of his as one tending to keep the enemy in doubt as to his next movement. On the 22nd the united

forces moved down the Luray Valley towards Front Royal, and Ewell's division, which was in advance, bivouacked at night 10 miles off that place. On the 23rd Jackson attacked and captured the majority of Kenly's force at Front Royal. Kenly's position was a tactically bad one, which was further rendered worse for the time being by Banks having withdrawn all his cavalry to Strasburg two days before. Kenly had thus been unable to patrol to any distance on the 22nd, and the security of his camp was practically dependent on the vigilance of his sentries. Jackson diverted the head of his main column to the right, about 4½ miles to the south of Front Royal, so as to attack from the south and prevent the enemy's retreat by way of Manassas Gap, while Ashby's and Flournoy's cavalry were sent to the left to cut rail and wire communication with Strasburg and prevent reinforcements being sent from there. After performing this work Flournoy was to move down the river to take the enemy in flank should he retreat towards Winchester or Strasburg. The surprise was entirely successful, and, although Kenly succeeded in holding his own for a time, he was forced to retreat towards Winchester by the appearance of the southern cavalry threatening his rear. Jackson, however, led the southern cavalry in pursuit, and a most dashing charge by Flournoy brought about the complete defeat and capture of practically the whole of Kenly's force with two rifled guns.

Jackson's dispositions in this operation are much to be admired. Had Kenly retreated on Strasburg, he would have found Ashby on his flank; and any reinforcements from Strasburg would have had to deal with Ashby before they could reach Kenly. Had the latter attempted to escape by Manassas Gap, he would have found Munford across his path. Besides all this, another party of cavalry had cut the wire between Front Royal and Washington; and a strong detachment, to the east of the Blue Ridge, had checked Federal patrols from the east and had blocked the entrance to the Gap from the direction of Manassas.

Jackson's movements took Banks, at Strasburg, entirely by surprise. Banks received information from Kenly during the day of the 23rd of the attack, but he does not appear to have put much faith in the report that the Confederates were in force. In fact, he is said to have contented himself with sending a regiment of infantry with a detachment of cavalry and a section of artillery to reinforce Kenly. He appears to have still thought that Jackson was no nearer than Harrisonburg. Later in the evening Banks received information that Kenly's force had been destroyed, whereupon he recalled the reinforcements he had sent to that officer's help. It is somewhat difficult to elucidate the point at which Banks actually made up his mind to retire upon Winchester. According to Gordon, one of Banks' brigadiers, up to 10 A.M. on the 24th Banks had decided not to move, whereas Banks himself, in his report, states that at 3 A.M. he had decided to retire and had made arrangements to do so.

In this report Banks says—"Three courses were open to us: first, a retreat across Little North Mountains to the Potomac River on the west; second, an attack on the enemy's flank on the Front Royal

road; third, a rapid movement direct upon Winchester, with a view to anticipate his occupation of the town by seizing it ourselves, and thus placing my command in communication with its original base of operations, and in the line of reinforcements by Harper's Ferry and Manningsburg, and securing a safe retreat in case of disaster. To remain at Strasburg was to be surrounded; to move over the mountain was to abandon our train at the outset, and to subject my command to flank attacks without possibility of succour; and to attack, the enemy being in such overwhelming force, could only result in certain destruction. It was, therefore, determined to enter the lists with the enemy in a race or a battle, as he should choose for the possession of Winchester, the key of the valley, and for us the position of safety."

To return to Jackson, whose operations so far had met with complete success. He had captured over 700 of the enemy with two guns, with a loss of only 40 or 50 to himself; he had seized a considerable quantity of stores, and he threatened Banks' line of retreat. Henderson says that he had no accurate information of Banks' numbers, and that these might have amounted to 12,000 to 15,000 for all he knew. He realised, however, that Banks had the three following courses open to him. He might remain at Strasburg, where he was in communication, though by a long and circuitous road, with Fremont at Franklin:—He might strike for Front Royal and escape by Manassas Gap. He might withdraw to Winchester on the night of the 23rd or the next morning. Jackson's plans for the 24th were evolved with an idea of providing for any one of these three contingencies. From a scrutiny of these, however, it will be seen that his fear of Banks advancing on Front Royal influenced Jackson's plans considerably and prevented his utilising to the full the advantages which his position on the flank of Banks' line of retreat gave him. In this, however, it is perhaps hard to blame Jackson, especially as his troops were weary from forced marching. His dispositions were as follows:—Ashby advanced from Cedarville towards Middletown, throwing out scouts on his left to prevent Banks from passing unobserved to Front Royal. These were supported by Taylor's Louisianians with some guns. Stuart, with the 2nd and 6th Virginian cavalry was despatched to Newtown to observe the movements of the enemy. Ewell, with Trimble's Brigade, the 1st Maryland and two batteries, was to move towards Winchester. The remainder of the force, which had bivouacked partly at Cedarville and partly at Front Royal and 4 miles round it, was to concentrate at Cedarville and thence march on Middletown.

Stuart reached Newtown before noon and found a convoy of Federal wagons passing through. This he threw into confusion, capturing some and plundering others, when Federal infantry from Middletown arrived and drove Stuart back. This enabled the Federals to continue their retirement on Winchester. As by in his advance on Middletown had been checked by a Federal regiment told off for the purpose, and by the time he had driven it in all the enemy's infantry had passed. The Federal rear guard of cavalry, however, was met with and was dispersed in confusion, leaving some

200 prisoners in the hands of the Confederates, Ashby being sent in pursuit towards Winchester. A halt was made by the main body at Middletown to ascertain whether it was the Federal advanced or rear guard which had thus been caught. When it was ascertained to be the latter, the pursuit was taken up, and word was sent to Ewell, who had halted 2 miles north of Cedarville, to march on Winchester. Nearly all Ashby's troopers and a part of the infantry attached to his command stopped to plunder, and in many cases it is said that the troopers went off to their homes with the plunder they obtained. This gave Banks the time and opportunity to organize a rear guard. Jackson arrived at Newton to find that the pursuit had been arrested, and it was dusk before the Federals were beaten back from that place. Jackson, however, would not hear of halting and followed up the retreating enemy the whole night through. His march was most skilfully impeded by Lieutenant-Colonel Andrew, commanding the 2nd Massachusetts of the Federals, till, on reaching Abraham's Creek about dawn (see map II), Jackson allowed his tired men to rest. Jackson had now with him on the turnpike, for the most part south of Kernstown, his own division, supported by Scott's and Elzey's brigades and nine batteries. About a mile eastwards was Ewell, with Trimble's brigade and ten guns. This detachment had moved on Winchester the preceding evening, driving in the Federal pickets as it advanced, and had halted within 3 miles of the town.

Banks determined to fight and took up a position south of Winchester. His numbers were now about 6,500. The Federal position was skilfully selected; on the turnpike and west of it was Gordon's brigade of four regiments, with eight guns and a strong force of cavalry in reserve. Donnelly's brigade, also of four regiments, with eight guns and a few squadrons, held the Front Royal road. Jackson's plan of action was simple. His advanced guard was to hold Gordon in position; and when Ewell fell on Donnelly, a heavy column was to move round Gordon's right. This plan was carried out with entire success. The Federals contested the position bravely, but they were greatly out-numbered and were forced to retreat. The fight followed through the streets of Winchester, and the Federal flight almost became a rout. At this critical moment Jackson found himself without cavalry. Ashby had been able to collect only some 50 of his men, and with these he had moved off to the enemy's left to prevent a retreat by way of Berryville to Harper's Ferry. Stuart was with Ewell, and, on receiving Jackson's message, said that he could obey no orders unless they came through his immediate superior. Two hours were wasted thus before Stuart took up the pursuit. Jackson with his infantry halted and bivouacked about 5 miles north of Winchester. Stuart followed as far as Martinsburg, 22 miles north of Winchester, but was too late and found no opportunity for attack.

"To the misconduct of Ashby's troopers, and to the pedantic folly of General Stuart, the escape of the Federal Army must be attributed," writes Henderson, while Jackson in his report says—"Never have I seen an opportunity when it was in the power of cavalry to reap a richer harvest of the fruits of victory. Had the cavalry played its part in this pursuit as well as the four companies under

Colonel Flournoy two days before in the pursuit from Front Royal, but a small portion of Banks' army would have made its escape to the Potomac."

The Federals, halting for two and a half hours at Martinsburg, continued their retreat at sunset and before midnight, to the number of three or four thousand, had arrived at Williamsford where they crossed the Potomac. Banks had lost some 2 300 prisoners and had left some 750 sick and wounded behind him. This victory at Winchester was even more prolific of results than the defeat at Kernstown. Lincoln and Staunton were electrified. "Troops were hurried to Harper's Ferry from Baltimore and Washington. The railways were ordered to place their lines at the disposal of the Government. McDowell, on the eve of starting to join McClellan, was ordered to lay aside the movement, and to send half his army to the valley. Fremont, * * * * *, was called upon to support Banks. McClellan was warned by the President himself that the enemy was making a general movement northward, and that he must either attack Richmond forthwith or come to the defence of Washington. A reserve corps of 50,000 men was ordered to be organized at once, and stationed permanently near the capital; and in one day nearly half a million American citizens offered their services to save the Union." As a result, McDowell's force was scattered, and McClellan found himself deprived of the support on which he counted to secure his right. Johnston, in command of the Confederate forces near Richmond, was thus able to postpone operations against McClellan until a more favourable opportunity.

At this stage, Lee, in reply to Jackson's request for instructions, told him to threaten an invasion of Maryland, and an assault upon the Federal capital. Accordingly, on the 28th May, the Stonewall brigade advanced towards Harper's Ferry. At Charleston, Winder put to flight a reconnoitring force of Federals and pursued till their reserves on a low ridge covering Harper's Ferry came in view. Ewell advanced the same evening, and on the 29th the valley army was concentrated near Hall Town, with the exception of the Louisiana brigade, posted near Berryville, the 12th Georgia, with 2 guns in occupation of Front Royal, and Ashby on the road to Wardensville watching Fremont.

Jackson's advance had now, however, come to an end, and at a time when Harper's Ferry and its magazines were at his mercy. He had learnt that McDowell and Fremont were in motion to cut him off. Shield was near Manassas Gap, while Fremont was 10 miles east of Moorefield. The position appeared most critical, but, nevertheless, Jackson determined to retreat by the valley turnpike, which was not yet closely threatened, and was the one road over which the enormous train of captured stores could be rapidly withdrawn. On the 30th the Confederate troops, except Winder's brigade, two batteries, 1st Maryland and the cavalry returned to Winchester. Jackson on his way there by train on that day was met by the news that Shield's division had taken possession of Front Royal. This made the situation still more critical, as it meant that, with resolute management, 35,000 Federals might be assembled at Strasburg by mid-day of the

31st. Moreover, at the time that Jackson got the news, there was not a Confederate battalion within 25 miles of Strasburg. Jackson determined to get through if possible, but if not, to fall back upon Maryland for reinforcements.

On the night of the 30th the whole valley army was ordered back to Strasburg, and Captain Hotchkiss, Jackson's topographical engineer, was sent with orders to Winder to hasten back to Winchester and not to halt till he had made some distance between that place and Strasburg. If he found Winchester held by the enemy, Hotchkiss had instructions to conduct this force round through the mountains. Jackson's main body reached Strasburg without molestation on the afternoon of the 31st and camped there, the Stonewall brigade halting near Newtown. Fremont and Shield were deceived by reports as to Jackson's strength and afraid to risk an encounter alone; both acted most irresolutely. The former allowed himself to be checked by Ashby, and although he had promised Lincoln to be in Strasburg at 5 P.M. on the 31st, he halted 6 miles distant. The latter had been deceived by a demonstration made by the Louisiana brigade, and had done nothing more than push a brigade towards Winchester, and place strong pickets on every road by which the enemy might approach. Neither General could communicate with the other, as the country between was held by the Confederates.

On the morning of 1st June, in order to cover Winder's retreat and to expedite the retirement of the convoy, which, with wagons in double columns, was 7 miles long, Jackson ordered Ewell to support Ashby and hold Fremont in check till the Stonewall brigade had passed through Strasburg. This was done with little difficulty. Winder reached Strasburg about noon and the whole force fell back on Woodstock.

Allan in his 'Jackson's Valley Campaign' sums up thus—"On Friday morning (*i.e.*, 29th May) Jackson was in front of Harper's Ferry, which is 50 miles from Strasburg; Fremont was at Moorefield, 38 miles from Strasburg, with his advance 10 miles on the way to the latter place; Shield was not more than 20 miles from Strasburg, for his advance entered Front Royal, which is 12 miles distant, before mid-day on Friday; while McDowell was following with two divisions within supporting distance. Yet, by Sunday night, Jackson had marched a distance of between 50 and 60 miles, though encumbered with prisoners and captured stores, had reached Strasburg before either of his adversaries, and had passed safely between their armies, while he held Fremont at bay by a show of force, and blinded and bewildered McDowell by the rapidity of his movements."

On the 31st May Jackson had expected Shield to advance on Strasburg, and, in the absence of and appearance of troops on the Front Royal road, suspected that Shield was moving by the valley of the South Fork with the idea of taking him in flank from Luray. He therefore despatched a force of cavalry to destroy the two bridges at Luray and that at Courad's stores. This they did without opposi-

tion, and Shield's cavalry arriving at Luray and Conrad's store on the 4th found themselves forestalled.

The Federals took up the pursuit with vigour, and on the 2nd and 3rd June sharp skirmishing took place. On the 3rd the Confederates retreated to Mount Jackson. On the 4th they burnt the bridge over the North Fork in their retirement and thus checked the pursuit for a day. Jackson sent his sick and wounded to Staunton, and on the 5th bivouacked, with the greater part of his force, at Cross Keys. On the 6th the Federals again got in touch with Ashby's cavalry, and a sharp fight occurred on that day, the Federals, however, being driven back to Harrisonburg. Ashby was killed during the engagement and his death was a great loss to the Confederates. Jackson wrote of him—"The close relation General Ashby bore to my command for most of the previous twelve months will justify me in saying that, as a partisan officer, I never knew his superior. His daring was proverbial, his powers of endurance almost incredible, his character heroic, and his sagacity almost intuitive in discerning the purposes and movements of the enemy."

On the 6th and 7th June the Confederates rested near Cross Keys. Shield, on the 6th, thinking that Jackson's force were demoralised and that they offered an easy prey, threw precaution to the winds and, regardless that his forces were much split up, determined to advance as rapidly as possible to Port Republic to 'finish Jackson' in combination with Fremont.

The situation was now as follows :—Shield was stretched out over 25 miles of road in the South Fork Valley ; Fremont was at Harrisonburg ; Ewell's division was near Cross Keys, while Jackson's main body was near Port Republic. Henderson describes Jackson's position at Port Republic thus (see map IV) —

- " 1. The South Fork of the Shenandoah is formed by the junction of two streams—the North and South Rivers ; the village of Port Republic lying on the peninsula between the two.
2. The bridge crosses the North River just above the junction, carrying the Harrisonburg road into Port Republic ; but the South River, which cuts off Port Republic from the Luray Valley, is passable only by two difficult fords.
3. North of the village, on the left bank of the Shenandoah, a line of high bluffs, covered with scattered timber, completely commands the tract of open country which lies between the river and the Blue Ridge, and across this tract ran the road by which Shield was marching.
4. Four miles north-west of Port Republic, near the village of Cross Keys, the road to Harrisonburg crosses Mill Creek, a strong position for defence.

By transferring his army across the Shenandoah, and burning the bridge at Port Republic, Jackson could easily have escaped Fremont,

and have met Shield in the Luray Valley with superior force. But the plain, where the battle must be fought, was commanded by the bluffs on the left bank of the Shenandoah; and should Fremont advance while an engagement was in progress, even though he could not cross the stream, he might assail the Confederates in flank with his numerous batteries. In order, then, to gain time in which to deal with Shield, it was essential that Fremont should be held back, and this could only be done on the left bank. Further, if Fremont could be held back until Shield's force was annihilated; the former would be isolated. If Jackson could hold the bridge at Port Republic, and also prevent Fremont reaching the bluffs, he could recross when he had done with Shield, and fight Fremont without fear of interruption.

To reverse the order, and to annihilate Fremont before falling on Shield, was out of the question. Whether he advanced against Fremont, or whether he stood still to receive his attack, Jackson's rear and communications, threatened by Shield, must be protected by a strong detachment. It would thus be impossible to meet Fremont with superior or even equal numbers, and an army, weaker in the battle-field, could not make certain of decisive victory."

On June 8th, however, Fremont advanced, and at 8-30 A.M. became engaged with Ewell's pickets. Ewell had at this time 6,000 infantry, 500 cavalry and 5 batteries, while Fremont had at least 10,000 infantry, 2,000 cavalry and 12 batteries. Jackson was then at Port Republic, and was just starting to ride to Cross Keys, when a messenger suddenly brought him the news that Shield's force had surprised the cavalry pickets and were already fording the South River. For a short time the situation was critical. But Jackson, acting with great vigour, succeeded in driving back the force in question, which evidently was not Shield's main body. Then placing two brigades in position to guard the bridge against any further portion of Shield's force, Jackson sent the remainder of his force to Ewell, and himself rode to the scene of action.

Ewell's force was posted along the crest of a narrow ridge with Mill Creek parallel to, and in front of, his position, which was thus a strong one. Fremont, as will be seen below, acted with great indecision. After the artillery preparation, only 5 regiments, out of 24 present, were sent forward against the Confederate's right. These were repulsed and were followed up by the Confederate's right under Trimble, who made a vigorous counter-stroke, and threw back the Federal left in disorder. Meanwhile in the centre the Federal skirmishers had been routed by a bayonet charge; while on the Federal right Milroy and Schenk, acting on their own initiative, had obliged Ewell to strengthen his position from his reserves, when they were recalled by Fremont, alarmed by Trimble's vigorous attack, to defend the main position.

Jackson could not afford, however, to press the advantage thus gained, as he had still Shield to deal with; and since it was evident that Fremont was not likely to assume a vigorous offensive, the Confederates contented themselves with following up slowly till darkness fell and put an end to the fight.

The Confederate casualties in this engagement amounted to 288, while the Federal reports showed 684 killed, wounded and missing.

Ewell's division bivouacked within sight of the enemy's watch fires and within hearing of his outposts.

Jackson now conceived the plan of attacking Shield and Fremont in succession next day, in the hope of overwhelming them separately, and with this object he ordered the following dispositions:—A temporary bridge was to be constructed over the South River at Port Republic; Winder's brigade was to move at dawn against Shield; Ewell, leaving Trimble's and part of Patton's brigade to hold Fremont in check, was to move to Port Republic at an early hour to follow Winder; Taliaferro's brigade was left in charge of the batteries along the river and to protect Trimble's retreat if necessary; the force left in Fremont's front was to make all the show possible, and delay his advance to the utmost possible extent.

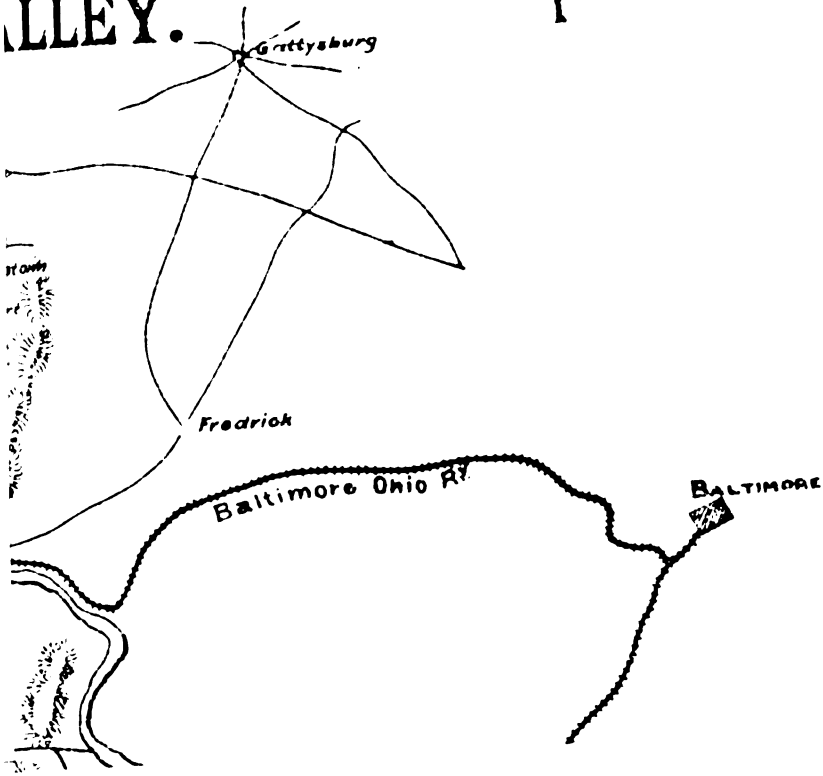
Winder started to cross the river before 5 A.M. on the 9th June and was followed by Taylor and Ewell. Owing, however, to the faulty construction of the bridge and to bad staff work, the latter's crossing was much delayed. As soon as Winder's brigade had crossed, Jackson advanced and was followed by Taylor, but at a considerable interval. The enemy's pickets were encountered about a mile and a half down the river, and, being driven in, disclosed the Federal position, which was on the terraced ground about Dewis House; their right rested on the river and their left on a ravine on a higher level. The Federal force consisted of 2 brigades of infantry with 16 guns, amounting to some 4,000 men. The position was strong, the men who held it were as staunch as the Confederates themselves, and Tyler, who had seen the Southerner's retreat before him at Kernstown, was in command.

Jackson, being anxious to get back to Fremont, ordered Winder to attack the Federal front; and in this he set him a formidable task: not only was his brigade checked almost at once, but it shortly began to fall back. On the arrival of Taylor's brigade it was ordered up the mountain to turn the Federal left, but its rear battalion had to be ordered to Winder's support. A most stubborn fight then took place between Winder's brigade and the Federals; just as matters were assuming a critical turn for Winder, two of Ewell's battalions arrived and were thrown against the flank of the Federal attack, but in vain; Tyler, commanding the Federals, had just ordered his left wing to reinforce his centre, and it seemed as if the Confederates would be defeated piecemeal. But at this moment Taylor's brigade made itself felt on the Federal left; here also there was fierce fighting, and the Federal battery on this flank changed hands twice; Taylor, however, made good his footing, only one Federal gun escaping capture.

Tyler, seeing the key of his position lost, saw nothing for it but retreat. The rest of Ewell's division had now reached the field, and Tyler was routed. His troops were pursued to near Conrad's store,

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whence Shield, "marching in desperate haste to the sound of the cannonade," covered them from further pursuit.

This desperate fight had left the Confederates in no state to attack Fremont. Jackson, however, finding Tyler's resistance so formidable, had ordered Trimble, Patton and Taliaferro to cross to Port Republic and burn the bridge. Fremont on his part advanced cautiously to the bluffs on the western bank of the South Fork and arrived only in time to see Tyler's defeat. To escape the fire from his guns the Confederates diverged into the hills and camped that night at the foot of Brown's Gap.

Next day the Confederates rested. Shield was retiring and orders from McDowell caused him to continue his retreat to Front Royal, whence he was ordered to Manassas to rejoin McDowell. Fremont withdrew from the neighbourhood of Port Republic on the morning of the 10th, and, followed up by the Confederate cavalry under Mumford, fell back to Middletown, whence he rejoined Banks and Sigel on the 14th. Jackson moved into camp across the South River and rested his army for five days. On the 17th, in obedience to instructions from Lee, he moved towards Richmond.

This closed the Valley Campaign of 1862; and we can do no better than conclude this article in Allan's words *—"Brilliant as were the achievements of General Jackson during the succeeding months of his too brief career, it was his Valley Campaign which first lifted him into great fame; nor do any of his subsequent deeds show more strikingly the characteristics of his genius."

* History of the Campaign of General T. J. (Stonewall) Jackson in the Shenandoah Valley of Virginia.

DEFENCE IN AUSTRALIA.

BY G. W. C. CRAIG, AUTHOR OF "FEDERAL DEFENCE, ETC., OF SYDNEY."

Defence, as considered by our "Commonwealth" Parliament, is a slow and painful question owing to the speeches of the Socialistic Party, who have only been defeated in their aims by the combine of Ministerialists and Oppositionists. The Labour Party is dead against everything Imperialistic, but it by no means represents the vast loyal majority of the people, who are true to King, Australia and "The Imperial whole." A small party very often can cause considerable disturbance, but the Labour Party by their demands for unworkable legislation, by their constant attacks upon the laws of Capital and Labour, and by their demoralisation of all good, sound and practical government will no doubt be defeated at the next Federal elections. Public opinion is turning against Labour leaders, not only for their drastic State Socialism, but for their semi-disloyal speeches in Parliament.

With regard to army defence and reorganisation, Sir Edward Hutton, our able and accomplished General Officer Commanding, has had an unsatisfactory time of it in getting his just and urgent army scheme to be adopted by this Parliament and the sectional public. Colonies are slow to realise the golden fruits of discipline and the urgency of drill and military education. They do not know that discipline is the path of military virtue, honour and success in war; and in this respect Canada is not unlike Australia.

The worst foes of discipline are the Federal Members of Parliament, some of whom believe they know more than the experienced General Officer Commanding or the Admiral Commanding on the Australian Station. It is amusing to read some of the Members' speeches in the Commonwealth *Hansard*, examples as they are of bad logic, bad patriotism and want of naval and military experience. Sir Edmund Barton and the Honourable R. E. O'Connor really made able and intelligent expositions of the Naval Agreement Bill and the Defence Bill in their second readings in Parliament. Sir William MacMillar made a sensible speech, as did also Senators Neild and Cameron, while the speeches of several other Members did not display the same soundness. But the wisdom and Anglo-Australian character of Parliament in both Houses prevailed, and though both measures are mere starting points in naval and military defence, we hope to see, year after year, a greater development in Australasian defence in support of the general defence scheme of the Imperial Empire.

The more we study the aim, object, preparation and strategy of foreign Powers in Asia Minor and the Balkan East, and also in the Corean-Manchurian Far East, to say nothing of the Russo-Persian complications, the more should all classes, colonies and dependencies sink internal differences of opinion and stand shoulder to shoulder, true as steel, in maintaining the Imperial lines of defence. This unity of defence is much wanted just now with the very God of War mobilising, concentrating and threatening.

My article in one of your *Journals* on the subject of a great naval combine for the defence of India, the Far East and the Austral Pacific has evidently had some weight in Admiralty minds, as the Naval Minute presented to the previous Conference in London by Lord Selbourne adopts the idea; indeed, the combined strategy, as I suggested, forms an item of policy in the Naval Agreement Bill now adopted by the Commonwealth Parliament.

It is true that a Sub-Board of Admiralty, sitting in Sydney, but still under the Supreme Board of Admiralty in London, has not been yet adopted. But, with regard to the combined naval strategy of Australia, New Zealand, the Far East and all the seas on this side of the line, some moves in the right direction have been made for the better defence of British interests in the Far East. Some Australians object to the warships of this station being sent away from our coasts in the time of war, as they know nothing of the naval value of the objective defence, or, in the fact, that the final defence of Australia may be fought out at the Nile or Trafalgar, far away from Sydney or Brisbane.

Owing to this fear some naval officers and colonial experts strongly support the Utopian idea of Australia having a local or federal fleet of its own "to protect the Coastal Commerce" and "create a naval martial spirit in the rising generation." In speaking in favour of such a local fleet, two well known men characterised England as an "outside" or "foreign" Power, and it can be easily understood that such individuals have to be watched in debate and on the public platform, as they may wrongly influence Young Australia. Queensland is sadly misrepresented in the Federal Parliament by a clique of Labour Members, and the Brisbane people so far have formed an "Australian Navy League in Queensland," pledged to create a local fleet, said to be under the Admiralty in time of war, but between the lines I see *under the Labour Party* should it ever get into ministerial power.

The naval defence of India, the Colonies, China and the Austral-Pacific must be directed by one head, one body and one responsible Admiralty. No man can serve two masters, and no nation can adopt two naval defence schemes, however well they may dovetail into one another. The electric cable and Marconi system of transmitting wireless messages apart from the evolution of steam, electricity and gunnery, have reformed defence since 1870,—indeed, since 1895. The opinion of States and Statesmen is to weld all disunited atoms of defence into one solid, intelligent and victorious whole, otherwise—the dark.

Not only must our Admirals solve the problem or problems of naval strategy and defence respecting the China and Australian stations in the event of war, but they must be officially brought into touch with each other and with the admirals on the Cape and Indian stations. All the British fleets on this side of the line must act in combination in order to strike a first and decisive blow at the enemy at the proper time and place. Our naval action must be short, sharp, decisive and conquering.

All the Imperial fleets must, in the next great war, be in touch with each other; the Cape fleet in touch with the Indian or Australian, the latter with China and *vice versa*, or the Indian in touch with the Levantine. I venture to think that a great deal of thought must yet be given to the subject and many schemes put to practical test before the naval strategic problem between the Indian, Cape and Australian fleets can be worked out in well-studied unity of action. The land defence and combined strategy of the several open Indian frontiers may be as perfect as a Moltke could make it, but the unexpected in the rear—in the Coastal or Indian Ocean rear—might happen. It might be the defeat of the Indian fleet, the capture of the Red Sea and Persian Gulf, or the destruction of our sea lines with London, the heart of the Empire.

India has not yet provided a fleet of its own, or presented the British Admiralty with three battle-ships, four 1st class cruisers, six 2nd class cruisers, or a mosquito fleet of torpedo boat-destroyers or sub-marine boats. India has certainly done its duty in military defence, and its army costs many millions every year, but that is its simple, national and territorial duty. It is loyal like the other Colonies, but all the Colonies, Crown, self-governing or otherwise, must devise some perfect and comprehensive system of defence from the sea—say in the rear of an Anglo-Indian army victorious at the front.

I am afraid that this is a question which the Indian Government has not yet threshed out, being somewhat satisfied with protection from coastal raids and sea-board town bombardment afforded by the British fleets all over the world—"The sea is all one, and the British fleet should be all one." But the Indian Government might contribute more than it does to the Imperial Navy which must become responsible for the safety of India from invasion, the protection of its coastal trade and its oceanic commerce. The relation of Sea-power to India is a subject for a Gold Medal Essay.

A prize for the best essay upon "The Naval Strategy of the Imperial Fleet for the Defence of India." should draw out some most interesting essays, and I am sure there must be some Mahans awaiting their opportunity in the Indian Army!

It may come to pass—who knows—that an Australian Army may have to land for service on the Indian frontiers, or the case may be

that an Indian Army might be obliged to land in Australia to drive out some bold invader. We were all deeply impressed with the troops sent from India to the birth of our Commonwealth, with the results that much mutual regard was created in both the Indian and the Anglo-Australian mind. May it long continue!

The great weakness of our race and military system is that of ever being caught unready upon the declaration of war. We were unready to fight Napoleon in Spain, to face Russia in the Crimea, to face the Great Mutiny, and notoriously unready in the beginning of the Boer War. Thanks to Lord Wolseley we were ready to face the Arab War in Egypt.

Let us all take another lesson from the Boer War, be able to see far ahead—months beforehand—the strength and probable movements of the foe, possess a Von-Roon-like Intelligence Department, and, without excuse or fault, be ever “ready—aye—ready.” To the credit of Indian officials be it said, its forces are never caught unready, nor its plans of campaign ill-understood by any average General.

With the exception of India, the military forces of the Empire are anything but jointed, cohesive, or ready. It would go badly with us if one or two great Powers declared war against us. Reorganisation is not made perfect in a day. Our battalions are not ready to embark on the tide nor are they “fit to go anywhere and do anything.” To-day soldiers must not serve, nor strike for pay. A good soldier does not serve for pay when war is near. We are placing too much value upon our brave—yet ineffective—militia and volunteer arms of the service. They are not the regulars of a European standing army. Citizen armies on the Swiss model are equal to permanent troops, for all are soldiers, and they are at drill and shooting every day. Neither Boer formation, nor South African tactics, will suit the British Army when fighting in Europe, or even on the Indian frontier upon local Spionkops and Magersfontains. Citizen armies in Australia founded upon conscription and a few days’ drill would melt away before a Russian or French Army, nor can the officers of such a force reach the high and necessary education as set forth by Major Hamilton in the Gold Medal Essay last year.

A citizen army at the best would be “men with rifles,” as Lord Wolseley would say. Australians are very touchy when told they lack the magic powers of discipline. We cannot hope to achieve military success without it. To hope for victory upon pot-shot or undisciplined armies is almost impossible. In such armies hope only tells a flattering tale at the first outset of war. More than pluck, valour and headlong heroism are wanted to-day,—more than ever they were in the days of Marlborough, Frederick, Wellington and Lord Clyde. Australia can never hope to pay for 150,000 men under arms upon the conscription system, or even the voluntary system; in fact, the new Defence Bill does not provide for a sufficient number of regulars to balance the citizen forces.

The citizen forces in the said Bill are divided into Militia, Volunteers, Reserves and Rifle Clubs. None of them can be sent from Aus-

tralia to co-operate with the Navy—say at New Caledonia the New Hebrides, Fiji, New Zealand, Samoa, China or India, unless they volunteer on lines similar to those which enabled them to go upon active service to South Africa. The permanent forces can be sent away in time of war, but none will be left behind to instruct.

The young Australian is too fond of the race and the Empire to which he belongs, he will not stay at home when the enemies of his King and country demand his services.

CASUALTIES AMONG OFFICERS IN WAR.

BY LIEUTENANT W. HAWKINS, 1ST PUNJAB VOLUNTEER RIFLE CORPS.

In commenting on one of the results of the reconnaissance from the Orange River, undertaken by Colonel Gough on the 10th November 1899, which resulted in the death of one officer, the wounding of three others (one mortally) and slight injury to two men, the *Times History of the War in South Africa* remarks that "the serious consequences of having all the officers picked off at the beginning of an engagement were made very manifest in this skirmish which led directly to that general abandonment of all unnecessary distinctive marks of rank, including the useless sword of the infantry officer, which has been one of the features of the war." Before this reconnaissance had been made in the western theatre of the war, the battles of Talana, Elandslaagte, Reitfontein and Ladysmith had been fought in Natal, and it had already been recognized that the officer was severely handicapped by those distinctions of dress, which, as far as the British Army at least is concerned, will probably not be seen on future battle-fields. It is understood, however, that formal orders abolishing the sword and other distinctive indications of rank were not issued till the 19th December 1899, after Belmont, Enslin, Modder River, Stormberg, Magersfontein and Colenso had added to our experience of modern warfare with the first white enemy we had met since the Crimea. Before that date the change was being gradually introduced; as we know, for instance, that when General Wauchope led out his brigade on the night of the 11th December, alone of all the officers, he still carried his old claymore. On the other hand, the loss sustained by the Naval Brigade at Enslin is attributed in part to "the hardihood of the officers in wearing their swords and polished Sam Brown belts."* But, in spite of all that has been written on this important subject, the question of the relative risks of officers and men has not yet been thoroughly examined in the light of actual comparative statistics; and it is here proposed to do this with the aid of such material, scattered and perhaps sometimes meagre, as is generally available. It is necessary at the outset to note that the percentages which must necessarily be frequently quoted have been arrived at by calculating the number of casualties (killed and wounded) among officers on the total number of casualties among officers and men; that is, for example, if the casualties among officers are stated to be, say, 10 per cent., it will be understood that they amounted to 10 per cent. of the total loss in killed and wounded in a particular engagement.

* *Times History*, Volume II, page 339.

It may be useful, in the first place, to go back to somewhat ancient history, and to consider the casualty statistics of a few important battles of the nineteenth century, making the selection as varied as possible. It will be seen that we have had an extraordinary variety of antagonists. Taking, haphazard, the Battle of Assaye in 1803, it is found that the casualties numbered 43 officers and 340 men killed and wounded among the British section of General Wellesley's force; that is, over 7 per cent. of the losses were among the officers. In this action every officer of the 74th Highlanders present with the regiment was either killed or wounded, except the Quartermaster, and it is remarked by one writer that he, although a non-combatant, did his best to share the fate of his brother officers. The records of the Peninsular War do not help as much as one would wish towards an examination of this subject. Napier gives detailed figures of the casualties among officers and men for only some six actions, but these show that the percentage of loss of officers varied from 5 to 8, the latter rate being due to the siege of Badajos. A passage in Sir Harry Smith's recently published *Autobiography* gives, in a few words, a vivid idea of the carnage at the storming of this town; he remarks—"There is no battle, day or night, I would not willingly re-act except this; heaps of slain—in one spot lay nine officers; we had all been struck." In most cases the Peninsular percentages include the losses among our allies. At Salamanca among the British force exclusively the percentage was 6·9, but when the Portuguese allies are included it falls to 5·8.

Then coming next to the two Sikh wars, it is important to bear in mind the fact (to quote the most recent authorities on them) "that the enemy we had to deal with was neither a miscellaneous horde of mercenaries, nor troops of daring but undisciplined hillmen, but an army of soldiers trained on the European model, better provided with artillery than our own until Gujrat, far out-numbering the troops opposed to them." The Sikhs, too, were adepts in the art of preparing rapid entrenchments, and whenever we met them the result was a pitched battle. The percentage in each was—Moodkee 7·3, Ferozshah 6·2, Aliwal* 9·3, Ramnagar 14, Sadullapur 9·8, Chillianwala 5·6, Gujrat 5·7. Ramnagar and Sadullapur were comparatively small affairs, the unfortunate charge of the 14th Light Dragoons, supported by the 5th Light Cavalry, in the river-bed of the Chenab, having been responsible for most of the Ramnagar casualties. The Sikh percentages, of course, include casualties among native officers, but the proportion of these to the casualties among British officers was, as a rule, not great. For instance, at Moodkee, 11 out of 63 were natives, at Chillianwala 43 out of 132 and at Gujrat 15 out of 44.

Five years later we were engaged with a European foe in the Crimea. At the "Soldiers' Battle" of Inkermann the percentage was low, only 5·5 per cent. There were many circumstances connected with the action which rendered it an exceptional one. It was fought in fog and rain and against heavy odds. Hamley says regarding the

* For three regiments only: details of more than half the casualties are not available.

conditions of the fighting that "Colonels of regiments led on small parties and fought like subalterns, Captains like privates: once engaged, everyone was his own General." Another writer remarks—"Nobody could see many yards from the point where he stood and fought and died"; and a third adds—"The bayonet of the private counted for everything in it, the brain of the General for almost nothing." And yet no less than 31 of the casualties included Generals (9), Colonels or Lieutenant-Colonels (5), commanding either divisions of brigades and officers commanding batteries, regiments or lesser detachments of foot. At the Battle of the Alma the percentage was about 5·3. Assaults were more expensive in officers. The "Quarries" were occupied on the 7th June 1855 with a loss of 47, which works out at over 6·5 per cent. In the two attempts on the Redan,* eleven days later, we lost 62 officers and 700 men; that is, 8·1 constituted the percentage of casualties among the former.

Passing over the considerable interval between the Crimean War and the second Afghan War, we rapidly review several engagements which were particularly expensive in officers. In the fighting round Kabul from the 10th to the 13th December 1879 the casualties were 10 per cent., while a little later, at the Battle of Kandahar, they fell to nearly 7 per cent. In the fighting at the Malakand the persistent and fierce attacks of the combined forces of fanatical tribes, from the 26th July to the 2nd August 1897, the loss of officers, including native officers, was nearly 10 per cent.; and at Aghah, in the Mohmand Valley, it amounted to something like 13. The casualties at Atbara and Omdarman, two battles with the forces of the Mehdi which differ in many material respects, were between 5 and 6 per cent. The Matabele Campaign of 1896 may be taken as a final illustration. In the fighting in the Matoppos on the 5th August the casualties amounted in all to only 20, 7 being officers, and the curious thing about them was that among the men killed 4 were non-commissioned officers and 4 of the wounded were also men of that rank. Three troopers and 2 Cape-boys were wounded, the latter slightly. In Baden Powell's summary of the casualties in

* It is difficult to refrain from quoting the following passage from Kinglake as a striking illustration of the risks which officers took in this assault. Referring to the approach of Colonel Yea's covering party to the abattis, the historian remarks:—"A'Court Fisher, though only a Lieutenant in rank, nevertheless, as we know, the Commanding Engineer with this force, was entitled, was even required to consult at fit times with the Chief. And the Chief was approaching. At the head of what remained of his storming party, Colonel Yea—sword in hand—came up to the verge of the abattis; and, addressing him, A'Court Fisher said: 'I am the Engineer Officer, Sir; shall I advance?' In the moment that followed Yea fell backwards, shot dead. Accosting Captain Jesse of his own corps, A'Court Fisher said: 'Well, Jesse, what's to be done?' Before Jesse could answer, he staggered under a shot received in the head and was killed. Then to several others successively A'Court Fisher spoke; but—as though his life had been given to him on some fell condition importing that all he accosted must die—it so happened that those addressed were stricken, one after another, before they could answer his words."

Mashonaland and Matabeleland he states that among the Imperial troops alone the casualties were 14 officers and 39 men (the force^{*} was 1,200 strong), which works out at over 26 per cent. It is not proposed to draw any inferences from the foregoing facts, in so far as they bear on the officer's equipment, to speculate on the probability or otherwise of conspicuous dress being in a measure responsible for high percentages where they occur, or to assign causes from the nature of particular combats. The difficulty of doing so is recognized; but this difficulty will if anything, increase on an examination of the casualties of the Boer War, which can now be more usefully proceeded with.

In the table annexed a selection of thirty-eight actions of kinds has been made, and it will be noted that it contains examples of the most varied descriptions of fighting.

Talana and Elandslaagte at once drew prominent attention to the fact that officers apparently presented unnecessarily distinct objects for the Boer marksmen. It is possible that at Talana the General† and his staff were watched making for the wood, at the further edge of which both he and Major Hammersley were hit; but there is no evidence to justify the belief that officers, by reason of their dress, were, as a rule, marked down. Colonel Gunning, who led the final attack on the hill, was killed as he reached the crest, and of the five officers who were among the first to reach the top, four were wounded. It is only reasonable to suppose that, under the circumstances, however these officers had been accoutred, the result would have been the same. So, at Elandslaagte, it was the leading of the officers which exposed them to heavy risks; it was the nature of the fighting—the advance on a well posted and excellently armed enemy—which as much as anything else accounted for the fact that at each of these battles the casualties among officers amounted to 13 per cent. of the whole. At Reitfontein and Ladysmith (including Nicholson's Nek) the percentage was not high, being 6 and 5·6 respectively.

There was ample time between Elandslaagte and Belmont for the authorities to take advantage of any lessons which were to be learnt from the experiences of the first two battles of the campaign, and to require the officer, so far as outward appearances went, in dress, equipment, etc., to drop his identity. One observant war correspondent, who was present at Belmont, could not but take note of a new departure, and mentions that officers, before the battle, discarded their swords and donned the private soldiers' accoutrements, even to the rifle. Probably this was not generally the case. The

* The troops were armed with a revolver—service pattern—in an open "cow-boy" holster, with a cord lanyard round the neck; a Lee-Metford magazine rifle, or Cavalry Lee-Metford carbine. No mention is made of the sword.

† Conan Doyle and the *Times* History disagree as to the conditions under which General Symons was wounded. The former says, in the final edition of his work, that the General, who had refused to dismount, was shot through the stomach and fell from his horse, mortally wounded. The *Times* asserts that he dismounted after jumping his horse over the fence into the wood, and that it was just after the General had stepped over a gap in the low wall to look at the position that he received his wound.

casualties at Methuen's first encounter were 8·5 per cent. At Enslin and Modder River they were between four and five. At Magersfontein they again rose to 7·5; and by this time the change in equipment was becoming more general, for it is incidentally stated in the *Times* History, in connection with the rough handling experienced by the Highland Brigade at dawn of the 11th December 1899, that "of the officers many had fallen, and the rest, dressed as they were in every detail, like the rank and file, were not easily distinguished by the bewildered eyes of the men where companies and battalions alike were inextricably mixed together." At Stormberg, the day before Magersfontein, the percentage was 11, but of the ten casualties among officers at this unfortunate affair two* were caused by our own artillery. At Colenso and Spionkop the percentage was between the 5 and 6. At the former, the 14th and 66th batteries had 2 officers and 7 men killed and 6 officers and 20 men wounded, or a percentage of 23 officers. It was remarked, as regards Spionkop, that General Woodgate himself, who was mortally wounded early in the action, ascended the hill with his troops, rifle in hand. The result of the extraordinary assault on Ladysmith on the 6th January 1900 was a percentage of over 10; and here at least it may be safely asserted that putting aside the question of leading, officer and man took exactly the same risks. In his despatch of the 20th March 1900 Sir George White mentions that Lieutenant-Colonel Park† with three companies of the 1st Battalion of the Devonshire Regiment, under orders to clear the ridge of Waggon Hill, entered action with four officers. After driving the enemy off the plateau and clearing every Boer out of the lower slopes and the dongas surrounding the position, he was the only officer untouched. But it was not during the charge that the officers fell, but after the Devons, having edged a little to the right in their charge, took cover from a low wall near a "nek" which the Boers had just quitted.

After Paardeberg and Dreefontein, where officers did not suffer to any unusual extent, Sannah's Post, on the 31st March, exacted a heavy toll in nearly 13 per cent., quite up to the Talana and Elands-laagte standard, but to be repeated and exceeded before the end of the war. At Wepener the losses were 8 per cent. of the whole, at Allemann's Nek 6, and at that "most gallant feat of arms" (to quote General Buller) at Bergendal nearly 7. Out of the eight casualties among officers at this action, four (the Colonel and three company officers of the rifles) fell while leading the assault. The Sand River affair, with its exceptionally high percentage, was not of great importance; but it is worth noting that of the three officers who fell here—out of a total of 14 casualties—one was killed while advancing with the extended line through the bush to clear out snipers, and one was wounded in going from one trench to another to encourage his men.

* *Times* History, Volume II: Conan Doyle says "at least one."

† An officer reserved for further distinguished service in the final stages of the war especially north of the Delagoa Railway between Lydenburg and Belfast, at one time keeping Schalk Burger and his peripatetic Government continually upon the move.

The operations which terminated with the capture of Johannesburg and Pretoria, and those which shortly afterwards followed east of Pretoria, were very expensive in officers. Most, if not all, of the casualties at Frederickstad were sustained, while several companies of the Scots and Welsh Fusiliers were advancing on entrenched Boers, over a mile of flat veldt, and so steady and irresistible was it that its object was fully attained. Curiously enough, the next engagement, while being one of the most brilliant of the whole war, was the costliest (in proportion) in officers. It will ever be associated with the name of Le Gallais, who, with nine fellow-officers, raised the percentage of casualties to no less than about 23; but to, in a measure, compensate for this, 7 guns and 114 prisoners were among the prizes won at Bothaville. After this in the more important engagements of the war, with the exception of Tweebosch (or Klip Drift), casualties never fell below 10 per cent. At Scheeper's Nek in September 1901 they were over 13.

De Wet's last escape from capture in February 1902 is worthy of note, from the point of view of these remarks, because the brunt of the action which resulted in his breaking through the cordon fell upon the 7th New Zealand Contingent, which lost as many as seven officers. Three months earlier, it will be remembered, a New Zealand Contingent lost five out of six officers at Rhenoster Kop. It is not a little remarkable that towards the close of the war it should be necessary to draw attention to the unfortunate incident which happened at Klippan, near Springs, on the 28th February 1902. A squadron of the Scots Greys forming a flanking party to General Gilbert Hamilton's column came into unexpected collision with a body of Boers, and it was not long before it sustained a loss of 11, 3 of the casualties being officers, who were killed. It reminds one forcibly of the incident with which this paper opens.

Taking the campaign as a whole, it appears from an official return published in May 1902 that 697 officers and 7,026 men were killed in action or died of wounds, a total of 7,723, so that the percentage of officers killed or died of wounds was just over 9. In many of the actions of the war the percentage of officers killed was higher than the percentage of killed and wounded combined, and it is reasonable, therefore, to suppose that the percentage of killed and wounded officers during the whole was not so high as 9.

Relying entirely on the above figures, it would be extremely hazardous to hold that conspicuous dress or equipment of the officer is responsible for the high proportion of wastage in many of the battles and skirmishes in South Africa. It may be higher than the wastage of any previous campaign, and perhaps circumstances point to the probability that in future high percentages will be maintained. This seems inevitable under modern conditions, and as long as the officer remains the leader of his men; and it is safe to say that he always will in battle, however much the private soldier and the non-commissioned officer are taught by the new system of training in peace to act more on their own initiative and to assume responsibility

more freely than they have hitherto been accustomed to do. It is also safe to say that to instil these qualities will require a deal of most painstaking training, seeing that the greater part of the material is drawn from a population among which for generations the necessity for the possession of such attributes as self-reliance in danger, quick initiative and keen and long eye-sight have entirely passed away. Three or four years' training may help to supply such qualities, but as they are of artificial growth and not inborn, it seems doubtful sometimes whether the results can be much more than superficial.

In this connection it is well to recall the words of "Linesman," than whom few know the British soldier better, both in the barrack-yard and battle-field. "Another great fault discernible in our soldiers," he remarks in a chapter of *Words by an Eye-witness*, "is their too great dependence on their officers. For this it may be urged their training is responsible; but, though partially true, I think that the genius of being led is so ingrained in our men that independent unsuperintended action can never be expected of them. No men will do better what they are directed to do, but no men are less likely to do the right thing in the absence of their accustomed director."

Similar views are doubtless held by a large majority of officers; and while there is ground for entertaining them, while all experience of warfare, modern and otherwise, tends to teach us that they are sound, the question naturally suggests itself, whether it is altogether wise to encumber such leaders with, for instance, a rifle which they will practically never use, and whose value, besides, as helping to diminish the risk they must always take, is still very doubtful, if one is to judge from the only practical experience which it has been possible to obtain. On more quotation, as bearing on this point, and the matter may be left here for the consideration of more practical men. The order of the day for the late Delhi Manœuvres was South African conditions, and one of the best reviews published of their results contains the following:—

"As to the second reform just mentioned, there have been fewer more plausible new departures in that much and continually reformed service, the army, than the order enforcing the carrying of rifles by officers. They have been carefully enjoined never to use their rifles, except for the purposes of defence, and to carry only a few rounds of ammunition in their pockets; but it is hard to imagine a tight corner where an officer would be unable to obtain a rifle from an otherwise employed man, such as an ammunition carrier, or a signaller, or from one of the killed or wounded, or failing these where the case would not be adequately met by the revolver or a Mauser pistol. Yet for the sake of an occasion which may come once in a life-time, if ever, the officer must be continually hampered by this cumbersome nine pounds of metal and wood. Nobody can imagine how seriously this useless impediment can impair the energy and utility of an officer, unaccustomed like the rank and file to having it constantly in his hand, and called upon as he now is—particularly in the case of the under-officered Indian Army—to control and supervise men extended over such wide areas."

That efforts to entirely assimilate the dress of the officer to that of the rank and file may occasionally incur enormous risks of confusion in time of panic, when the first impulse of the soldier is to look for and to his natural leader, is clear from what happened at Magersfontein. The incident has already been referred to, and it is not improbable that similar incidents will occur again ; may be, with far more serious results.

With regard to the artillery, perhaps, there is greater reason for making the officer as inconspicuous as possible, and with no such risk. This arm suffered heavily on many occasions during the war ; and it is only necessary to refer to the casualty list of Colenso to fully realize the fact. If it is considered that the percentage of loss of officers on that occasion was quite exceptional, it may be added that up to the middle of 1901 the casualties among the artillery amounted to 692, including 85 officers, which works out at 12 per cent., an admittedly high rate. To go into further details, the loss was 12 per cent. for the period up to 31st August 1900, 13 from the 1st September to 31st December 1900, which rate was maintained for the period from 1st January 1901 to 30th June 1901. From 1st July 1901 to 31st December 1901 the percentage was 14'4, and it was only during the period from 1st January 1902 to the end of the war that it fell to 9'3. The casualties during the whole war were 118 officers and 844 men ; that is, the loss of officers was 12'3 per cent. of the whole.*

* From particulars supplied to the Royal Artillery Institution by the Director-General of Ordnance.

Percentage of casualties among officers in battles, skirmishes, etc., in the Boer War.

Action.	Date.	Percentage.	REMARKS.
	1899.		
Talana	20th October ...	13	Of killed only, 24 per cent.
Elandslaagte	21st " ...	13'4	
Reitfontein	24th " ...	6	
Ladysmith	30th " ...	5'6	Includes Nicholson's Nek.
Major Gough's Reconnaissance	10th November ...	6'6	
Belmont	23rd " ...	8'5	Of killed only, 17'6 per cent.
Enslin	25th " ...	4'8	
Modder River	28th " ...	5	
Stormberg	10th December ...	11	
Magersfontein	11th " ...	7'5	
Colenso	15th " ...	5'3	
	1900.		
Assault on Ladysmith ...	6th January ...	10'6	Of killed only, 20 per cent.
Spionkop	17th to 24th January	5'7	
Paardeberg	16th to 27th February	6	
Relief of Ladysmith ...	19th to 27th "	8'6	
Dreefontein	10th March ...	5'6	
Sannah's Post	31st " ..	13	
Wepener	April ...	8	
Capture of Johannesburg and Pretoria.	28th May to 5th June	20	
East of Pretoria	11th and 12th June...	15	
Allemann's Nek	11th June ...	6	
Zand River	14th " ...	21	
Uitval's Nek	11th July ...	8	
Bergendel	27th August ...	6'9	
Frederickstad	25th October ...	13'5	

Action.	Date.		Percentage.	REMARKS.
1900— <i>contd.</i>				
Bothaville	3rd November	...	22·7	Of killed, only 30 per cent.
Nooitgedacht	13th December	...	6	
1901.				
Svlakfontein	28th May	...	10·7	Of killed only. Details of wounded not available.
Near Reitz	6th June	...	14	Of killed only. Details of wounded not available.
Scheeper's Nek	17th Septemer	...	13·3	
Brakenlaagte	30th October	...	10·8	Of killed only, 16 per cent.
Tweefontein	25th December	...	10	
1902.				
Last attempt to capture De Wet within block house cordon.	23rd February	...	11·6	
Near Klerksdorp (Jagd Drift)	25th „	...	6	
Tweebosch (Klip Drift) ..	7th March	...	5	Probably higher. Have been able to obtain the names of nine officers only out of about 189 casualties in all.
Hol Spruit	2nd April	...	12·5	
Siege of Mafeking	.....	...	6·5	
„ Kimberley	.....	...	10	

NOTE.—From December 1900 to May 1901 there were many important engagements such as those at Belfast, Knaifontein, Zuurfontein, Modderfontein, Haartebeestfontein, Lichtenburg and Wilmansrust; but it is difficult to obtain details of casualties for any of them.

THE TRAINING OF THE RAILWAY TRANSPORT OFFICER.

BY MR. T. G. ACRES, P. W. D.

In the absence of any definite information as to the powers which it is intended to entrust to the Railway Transport officer of the future, or the duties which will be required of him by the military authorities, it is not possible to do more in this paper than to deal with those matters which, whatever the military scope of his duties may be, must inevitably arise from his contact with the railway authorities, unless his designation is to be merely an empty form.

The possibility of the control and management of any Indian Railway ever passing entirely into the hands of the military authorities whether in times of peace or of war is so remote, that even in this connection the need for dealing with it does not arise. And although, as past experience has shewn, the co-operation of a Railway Transport officer is in no degree essential to the successful issue of a Railway official's work in dealing with a mobilisation of troops, his co-operation can, and ought to be a considerable factor in facilitating its accomplishment, at any rate until we get beyond the stage of "shoving things through," into which every effort has heretofore degenerated. The requirements which eventuate in the appointment of a Railway Transport officer are solely military requirements, and it is for that department therefore to primarily formulate the sphere of his duties and to regulate the power and authority which he shall wield. All that concerns a railway is that there shall be no overlapping of authority, and that, so far as railway working proper is concerned, there shall be a well defined boundary beyond which the Railway Transport officer shall not go. The harmony of their relations will depend very largely upon the recognition of this, and it is from the harmony of their relations that success is most likely to come.

A Railway Transport officer can best serve the interests of the military department by facilitating the work of the railway official with whom he has to co-operate. He can do so directly by the manner and the completeness of the form in which he presents his demands and indirectly, by the control which he ought to be able to exercise over regimental and other equivalent authorities. Most of the difficulties which have in former years arisen between the two authorities during mobilisation have been the outcome, either of a want of appreciation of the capacity and requirements of a railway, or of the idiosyncracies of individuals, and unless the Railway Transport officer of the future is able to meet and deal effectually with all such cases, he will not have advanced one atom beyond his present day position of helplessness in the face of almost every difficulty,

however trivial, which arises. It has not heretofore been entirely his fault. Anyone would do for the position, and previous training was not considered necessary. During the frontier operations of 1897-98, no fewer than six officers occupied the position in succession at one military station alone: none very willingly, and not one possessed the very smallest knowledge of railway requirements.

The extent to which a solution of this aspect of the question could be found in the delegation to responsible Railway officers of a sufficient corresponding military rank and authority during mobilisation, is capable of some argument, but as it is scarcely germane to the subject of this paper, it must be left for later consideration.

The traffic which a railway has to deal with in case of mobilisation may be broadly classified under the following four heads:—

- (a) Troops of all arms including Hospitals.
- (b) Commissariat stores.
- (c) Ordnance stores.
- (d) Transport.

Hitherto, the Railway Transport officer has had nothing to do with the movement of either (b), (c) or (d), and it would be a great mistake to attempt to introduce him into the transactions. All those departments are accustomed in peace times to dealing directly with the railway authorities. The officials on both sides have got into one another's ways, and the work, as a rule, goes smoothly and easily. All that is required to meet the pressure of mobilisation, is the expansion of existing arrangements. There is neither need, nor desirability for introducing a middleman in the shape of the Railway Transport officer into the transactions even if there was any possibility, which there is not, of his being able to cope with the work. In regard to transport, despatches are, as a rule, made from wayside stations where the animals, etc., are collected and where no Railway Transport officer exists, and the officer in charge of the work, being on the spot is far better able to arrange his despatches with the local railway officials or, if need be, to communicate direct with the Superintendent of the line. And at the railway terminus or discharging point all three of those departments are efficiently represented, so that at no point of their transactions with the railway is the intervention of the Railway Transport officer needed. Moreover, it would be manifestly very undesirable, so that there remains only as a field for the Railway Transport officer (a)—Troops of all arms and Hospitals—or, at least, that part of the transactions which is concerned with the details of carrying out certain movements pre-arranged by higher authorities. With the major arrangements he can have no concern since he cannot answer finally for either the military or the railway authorities. It would unquestionably be an excellent thing if the requirements of the military authorities under (a) could be focussed by the Railway Transport officer into a homogenous and workable shape, and be presented by him to the Railway authorities in such a form as would admit of their getting to work on it at once, and finally. But on the nature of things and of men that is not as yet

possible. It is only by men who have the power to accept or reject on the spot and to ensure that their acceptance once given shall be as rigidly adhered to by those under them as conditions will allow that these things can be effectually dealt with. When the troops were returning from the last frontier expedition, a committee, consisting of a senior Staff officer, a Major, R. E., for mobilisation, and the Railway Superintendent, assembled to draw up a programme for the movement by rail of but little more than a single brigade. After much profitless discussion, it resolved itself into the military members being left to decide how they could bring the troops to rail head and to the Railway Superintendent to then say whether he could take them in that way. Eventually, a programme was drawn up and accepted, but that programme was radically altered at least three times before the troops began to reach rail head and even then they did not entrain in anything like the order agreed upon. Transport difficulties—of which the military members were, of course, aware—had to be taken into consideration in regard to getting the troops to the railway, and allowances had to be made for the possible break down of the plans for getting the most out of the transport available. Also, there was the question of accommodating and feeding the troops if they had to make any stay at rail head before moving off, and possibly other considerations rendering it undesirable that they should stay there. And if those matters of which they had full cognizance prevented senior Staff officers from ensuring that a programme of movement which they themselves had drawn up should be adhered to, it would seem to very effectually dispose of any idea of leaving work of the kind to a Railway Transport officer.

All that is left to him, therefore, are the details of carrying out railway movements arranged for by higher authorities, and it presents for him a very much larger and wider field for useful and meritorious service than at first sight it appears to do. Hitherto, the duties of a Railway Transport officer have apparently not been framed with a view to his having in any sense a medium for communication between the two authorities. In all cases of dispute one or other authority had to present at the time. There was not, and, in the nature of things, there could not be, time for reference to higher authority, and unfortunately it cannot be safely reckoned upon that the authority which is in the right, or which ought to prevail always will prevail. The only alternative which readily suggests itself to the puerile expectation of removing all causes for friction is to put in a man who, by his training and experience, shall be qualified to hold a brief for either side as occasion demands, and who shall be able, by the application of his special knowledge, to smooth the way for both sides and to foresee, and, as far as is possible, to prevent their conflict. The Railway Transport officer has certainly not had those qualifications in the past, but there is no reason why he should not have them in the future, and something of the kind is imperative if any effort is to be made at all to meet that friction which is inevitable between two wholly independent bodies of men, when one side is endeavouring to meet the demands of the other.

It would perhaps afford a better idea of the directions in which the executive of a railway would benefit by the appointment of such an officer if some of the difficulties which were experienced during the Frontier operations of 1897-98 were briefly referred to:—

I.—*Want of information.*—There was a considerable concentration of troops at Rawal Pindi for instance at different times during the operations, and nobody ever seemed to know who was to move or when they were to move. The Station Staff office either did not know, or was under some obligation of secrecy, and the Railway Transport officer had to rely on Railway officials for any information he had. It was often the case that troops arriving did not know whether they were to go on or detrain, and railway arrangements were greatly hampered by the uncertainty since there were no means of knowing whether it would be safe to fill the road up with waiting traffic or leave room in case those troops should be required to go on. The Railway Transport officer should have the earliest and most complete information possible on this point, and be the one on whom the Railway Superintendent can confidently rely for such information as is essential to the best utilisation of the capacity at his disposal. If it is necessary that the information be kept confidential, this would still not prevent the Railway Superintendent from acting upon it without making disclosures, and he is just as qualified as the other men who have it to realise the obligation of secrecy. But he must be kept fully advised, or else he absolved from responsibility if he has no room on his road for sudden demands; for it must be remembered that there are three other departments clamouring for the utmost of his resources, and there is no time to waste. Nor must the Railway Transport officer hedge he must be in a position to give a decision at once one way or the other, and hang at the head of it if he is wrong. Hitherto it is the railway official who has had to take the blame, but it is a military shortcoming, and blame should therefore fairly be with that department.

II.—*Absence of workable details.*—It was quite the rule at Rawal Pindi, at any rate, for the railway to get no more notice of an intended movement of troops than the bare announcement, made at the last moment, that a certain Regiment or Battery was required to leave for the front at once. This was communicated as a rule by the Station Staff office, which, when it remembered the matter, added that the necessary details would be furnished by the Officer Commanding the unit. In nine cases out of ten those details never came at all, and the Railway officials had to get the work in hand

by taking the scale laid down in the Field Service Manual which scarcely ever accorded with actual requirements. The result was conflict with the regimental authorities owing to excess or deficient accommodation, shunting at the last moment and consequent late starts throwing the trains completely out of running, and a considerable amount of odium incurred from the effort to make up for military omissions. Such demands should be presented by the Railway Transport officer, who should be responsible for seeing that all necessary details are furnished, so that no excuse will remain to the railway if the trains are not right. It would not be going too far, in view of past experience, to lay it down that the Railway authorities were entitled to reject all demands in which essential conditions were not fulfilled. The Railway Transport officer should further be required to take over the trains when they are ready, satisfy himself that they are what he asked for and be present to deal with any objections raised by the Commanding Officer of an entraining unit.

III.—*Failure to furnish the necessary warrants or vouchers for accommodation supplied.*—This was a very fruitful source of trouble. It was seldom indeed that troops leaving Rawal Pindi for the front brought a warrant to cover the journey. The Staff office was too busy, or they had not the necessary details, and "would send the warrant later." It was only by persistent dunning that they could be obtained at all, and in no single instance, when they were obtained, did the details coincide with what had gone away.

Sick and wounded and others returning from the front by way of Kohat ought to have got their warrants from the Staff office at Kohat, some 30 miles from rail head as it then was, but they invariably came on to the railway without them, and without any notice to the Railway authorities of their approach, creating considerable difficulty in the small and very cramped yard at Khushalgarh in making provision for demands, the nature and extent of which from day to day it was impossible to forecast. It would be tedious and scarcely necessary to go into the matter of the endless worry, work and confusion which beset a railway for years afterwards in endeavouring to get its transactions properly accounted for. Each succeeding case of omission adds to the measure of the resentment of the Railway official, who knows quite well what it will all mean to him afterwards.

Now, if the Railway Transport officer is to be competent to present demands, he must be competent also to supply the voucher in support, and his certificate at the foot of the warrant that the accommodation has been provided should be sufficient for all purposes. If the needless form at present in use, and styled the 'damage memorandum' is to be persisted in, he should sign that also, so that officers and others in command would be relieved of all documentary responsibility in connection with the entrainment of their men. An

additional argument in support of the proposed change, from a railway point of view, is that, whereas the Railway Transport officer would remain and be always get-at-able to promptly rectify or adjust error or omission, the commanding officer of a unit, once he gets away on service, is a hopeless quest. And it would add to the effectiveness of the change if the powers of the Railway Transport officer embraced such latitude as would enable him to reciprocate in the give-and-take which there should be between the two authorities.

IV. Want of knowledge on the part of Regimental authorities of the capacity or requirements of the railway—Such instances as the following were by no means uncommon:—

Not knowing how many men to put into a compartment or the various carriages. (At night the figures marked on the carriages cannot well be seen, unless searched for) Inability to load their guns, etc., into the regulated number of trucks.

Not knowing where to load saddles and lances and demanding accommodation for which there was consequently no room.

Refusing to allow excess vehicles to be detached.

Filling up horse-boxes with baggage and refusing to make room for other horses.

Demanding covered-in stations for detrainning sick and wounded where none existed.

Refusing to detrain their men till daylight.

These it should be the province of the Railway Transport officer to meet. The fact of his being a soldier, even if he is not given special powers, would doubtless contribute to his having more weight in such cases than a Railway official. It is not intended to imply that the Railway official cannot deal with such matters; he can and does, but it is at the expense of a great deal of conflict which must impair the work, if it does no greater harm, and there is no reason why he should be subjected to the necessity for it.

In South Africa, during the recent war, it is believed that very excellent results were obtained by delegating to the Railway Transport officer the power to wire direct to the Commander-in-Chief in any case of difficulty with regimental authorities, and, if so, it is a system which might well be copied in India.

V. The want of somebody to take the responsibility for departures from red-tape bonds.—Although it is universally admitted that in time of stress no rule-bound official can hope to succeed, yet the tendency undoubtedly is to get somebody else to break the rule. There is no more rule-bound department in existence than the Commissariat Accounts Department, and the Railway Transport officer must have the power to deal with all cases that arise. One well-defined instance which may

be taken by way of example is the rule that all railway accommodation provided in excess of what the warrant justifies must be either paid for in cash or be entered on the warrant. There is as much trouble made over a matter of a few annas as there is over hundreds of rupees. And, as a rule, neither of the required courses recommends itself to the commanding officer whose arguments are many and varied and often not unreasonable. The Railway official has either to let the excess go and trust to subsequently recovering the amount through much travail of correspondence, or risk a possibly violent conflict by forcibly detaining the excess. These matters should be dealt with by the Railway Transport officer, and, if he is unable to persuade the commanding officer to do what is needed, he should have the power to certify across the warrant that the excess was persisted in, and the case should thereafter be one for adjustment between the accounts officer and the commanding officer. At present, the adjustment of the whole account with the railway is deferred until that side issue is settled, and not only that, but the railway is most unfairly saddled with the task of recovering the amount or withdrawing the claim.

These, but briefly outlined, are the main directions in which an efficient and tactful Railway Transport officer would be of the greatest possible assistance to a Railway superintendent in working a mobilisation traffic through. It will be clear that, from a railway point of view alone, the scope of his duties will involve a considerable amount of work, with a not unreasonable amount of responsibility, and will require that he should be in constant touch, either personally or by qualified deputy, with the work going on at the railway station throughout the 24 hours. For that reason his office should be located at the railway station, conspicuously marked out so that even newcomers would have no difficulty in finding it; and a sufficient establishment should be maintained during the night also, so that all vouchers or documents that may be needed can be provided at once, and not be left to the day staff. Arrears so started soon become hopeless.

In regard to the training through which a Railway Transport officer should go in order to qualify him for the position which it is proposed he should hold, all that can be here dealt with is his railway training, which must, of course, be subject to the military requirements of his position. He should have at least 6 months of training, to be divided between a Railway District Superintendent's office, and an Examiner of Commissariat Accounts' office—four months being allotted to the former and two months to the latter, both of which should be periods of instruction by competent officials, and not be merely time spent in picking up of his own accord such information as he thinks may be useful. In the railway office, his instruction should embrace: the capacity of the railway with which he is to be concerned, the strain upon it which mobilisation involves, and the

margin, if any, upon which he could draw; the effect upon his resources which every demand that he is likely to make will have, and the true essential to the preparation for, and the carrying out of such demands; the facilities available for the entraining and detraining of troops of all arms at every station within his control and the considerations which are thereby imposed upon any demands he may make; the system of working and its limitations, and the result of a break down; the necessity for the various forms and documents which are required, and the uses to which they are put. These, and the many details incidental to each, should form the ground work of his instruction, aided by such practical illustrations as the ordinary working of a railway will afford. And then a couple of months' instruction in the accounts office should enable him to grasp the reasons for the existence of the various forms, the uses to which the details they contain are put, and the consequences of any failure to furnish them. And even, if conviction is not carried to his mind, he will, at least, have learnt that the demands of that department are inexorable, and that he will do well to ensure that the work which goes through him gives no ground for its rejection.

Although there are admittedly difficulties in the way of doing so, and the matter is one entirely for the Military department, there can be no doubt of the desirability—the necessity almost—for the Railway Transport officer and his establishment to be ready in working order to meet a mobilisation whenever the need arises, instead of their being hastily gathered together after the need has arisen; and, in the same manner, it is impossible to lay too much stress upon the fact that the framing of the duties of a Railway Transport officer must be the result of a well thought out, and deliberately adopted scheme, and that for reasons which it is surely unnecessary to detail, a series of haphazard and piecemeal additions to his duties as occasion suggests can only result in disappointment and failure.

THE RULING PASSION.

BY CAPTAIN C. C. B. MURPHY, SUFFOLK REGIMENT.

The provisional Musketry Regulations for 1903 in the chapter which deals with the theory and powers of the rifle, lay some stress upon the necessity of being acquainted with the various conditions which tend to affect elevation. Musketry has now become a subject of paramount importance; but the object of it is to teach an unscientific man to hit what he shoots at, which must assign to it somewhat narrow limits. The trajectory of a bullet might of itself be made the thesis of an advanced mathematical treatise; in fact it would not be possible to stray far in any direction without getting into the quicksands of science from which the great majority of the readers of the musketry regulations would find it hard enough to extricate themselves. The subject, so far from being made either scientific or comprehensive, should be all simplicity; and as soon as a writer or a lecturer on it loses sight of this fact, he at once begins trying to raise those he is addressing to his own level instead of descending to theirs; and while the former may vary, the latter must always remain the same. It will however be necessary for the purposes of this article just to touch on the theories of the subject.

Whatever has been included in the provisional musketry regulations is presumably deemed to have a practical value either on the range or in the field. For if anything had been inserted for examination purposes only, it would have been almost equal to an official recognition of the antagonism between theory and practice. It is therefore intended to discuss part of the matter of the chapter referred to above and to enquire what value the knowledge of it would be to the soldier in the field.

It is a curious thing that a school of musketry, which might be better described as a seat of teaching rather than of learning, should invariably try and persuade its students that they are working at an abstruse subject. It is however a sign of the times. The fact of the matter is we are not content with being simple soldiers; we must be scientists too; and the modern school will have us believe, at all costs, that the army is a learned profession.

Like most other things musketry is in a transition stage. It has many debatable points, and could furnish matter for much controversy. Whenever a question is raised we look to the regulations for a ruling on it; and in order to avoid such a thing as a moot point, they give decisions which are not always well thought out. These however become embodied in the school of musketry dogma, and are often somewhat roughly handled by subsequent investigation. Considering then, that many of their theories are mere conjecture, a good deal of attitude might reasonably be expected in examinations; and any

answer which is not directly opposed to established principles should be marked according to its soundness, even though it be somewhat heretical. The majority of formulae in the "Text Book for Military Small Arms and Ammunition" are more or less empirical and some of them are very rough without being correspondingly simple. Were any calculation involves a mathematical operation that is at all complicated, why not leave it out altogether? A knowledge of the ballistic tables and angles of descent will not help to make a man a good shot any more than a knowledge of dynamics will help him to be a golf-player.

As soon as the phenomenon known as *jump* began to be recognised, the text book was forced to offer some explanation of it: it pointed out how the explosion in the chamber gave the barrel, near the breech, a tendency to rise which would depress the muzzle just as the top of a fly-rod would dip if the butt-end were jerked upwards. The next paragraph had better be quoted *verbatim*. "The jump of a rifle has here been treated as if it were purely in a vertical direction; but there is often present a certain amount of lateral variation depending both upon the charge used and the position adopted for firing." This was of course lame in the extreme. It conveyed the idea that the jump was due to the *explosion*, and gave no reason for the lateral variation which was the most important part of the whole thing, as will be seen later on. As a matter of fact jump is due to something else. The great pressure with which the hard-coated bullet is forced into the grooves, combined with the high velocity at which it is driven through the barrel, sets up in the latter a peculiar gyratory motion which is distinctly visible in a photograph, and which gives to the bullet a sort of upward flick to the left as it leaves the muzzle. Jump is due therefore to centrifugal force.

Now let us suppose a heavy weight to be fastened rigidly to the muzzle of the rifle when it is fired, and see what effect we might expect it to produce. At the instant of the explosion of the charge the barrel would begin to gyrate as has been already shown. The delicate motion however would expend itself in overcoming the inertia of the dead mass attached to the end of the barrel, so that the upward and leftward flick already referred to would not be imparted. The bullet would therefore fall short, and owing to the displacement of the foresight to the left, would be deflected to the right. The sword-bayonet weighs just under one pound which is more than one-tenth of the whole weight of the rifle, and when fixed produces exactly this effect. Thus if you were firing at 800 yards with fixed bayonets, you would have to aim one foot to the left of the object, and adjust your sight to 800 yards.

After having gone into these details with the recruit and explained to him the intricacies of them, you will perhaps give him some practical instruction about the use of the bayonet and the fixed sight. He will be taught on the least whisper of "cavalry!" to fix both his sight and his bayonet, *no matter how far away the cavalry may be*. This certainly sounds odd, but it is really very practical and would produce undoubtedly the best results. If a man were to fire kneeling

on level ground with fixed sight and fixed bayonet, and aim at the ground line 500 yards off, his bullet would hit the ground somewhere about 400 yards away from him. Now instead of at the ground line, suppose him to fire at the head of a cavalryman 800 yards away under the same conditions. The probabilities are that the bullet would at any rate reach the horse; and if an extended line were ordered to assemble to meet a charge of cavalry it is very doubtful whether they would require even as much elevation as this by the time they got their first volley off, although the cavalry might have been as much as 1,000 yards away when first noticed. Fixing bayonets and altering sights under these circumstances would only tend to flurry troops, and would lessen their fire effect; and therefore all this must be finished with before the volleys commence and the necessary elevation for the first one or two at the most, obtained by aiming high. This may seem rather a rough and ready way of doing things, and yet it produces the best results, a fact which ought to be rather damaging to the theorist's case.

No two rifles however much alike will shoot the same; just as no two yachts though built on exactly the same lines will ever sail alike. It is not surprising therefore to find that the radius of gyration varies slightly even amongst rifles which have been turned out by the same factory. The minutest differences in the composition of the steel in the barrels, or in the finish of the grooving, or in any other particular might help to account for the idiosyncrasies of rifles, dealing as we are with almost infinitesimal quantities. For service purposes however, the error due to jump was taken to be constant; and a displacement of the foresight (at first, of the barleycorn only) $\cdot 02$ of an inch to the left was found to reduce the error sufficiently to produce fairly accurate results. Allowance has therefore been made in the barrel sights for jumps, but for some reason in the dial sights there is no compensation whatever. Considering that we are enjoined to use the latter sighting at ranges of 1,600 yards and over, where the lateral error is greatest, it is difficult to understand why it has been ignored. Nor is this all, for the nose-cap now in use in the Lee-Enfield rifle actually plays into the hands of the error. It will be remembered that in the first issues of the '303 rifle, the upper band was a separate part, and could be tightened if necessary. The barrel could therefore be always kept in its place. But in the Mark II and all rifles of subsequent patterns, the upper band and the nose-cap form one component which has to be made loose enough to be slipped over the foresight, and to allow the barrel to expand when heated. The result is a certain amount of play in the barrel at a point where it ought to be held rigid at all costs. There is no means of adjusting it; and in many of our newest rifles, namely, those supplied by the B. S. A. Company, there is considerable play which must surely be a serious shortcoming. The new nose-cap may perhaps be stronger and cheaper, but it is certainly inferior to its prototype in this respect.

The regulations require a rifle that is to be tested to be first of all examined by an armourer for the purpose of ensuring, amongst

other things, that the barrel is not unduly gripped by the nose cap or bands. They do not seem to think the converse of the situation to be worth considering; namely, undue play. Perhaps the nose cap of the new rifle with which we expect to be armed shortly will be fitted with a spring clip which would keep the barrel rigid whilst it would admit of any amount of expansion at the same time.

The old theory about jump, though of mushroom growth, lasted for several years; and any candidate giving the modern explanation would have done so at the risk of his success in the examination. Only those who went on peacefully enunciating the illogical doctrines of the fly-rod school passed with distinction. Another inherent error in the rifle is that known as drift. The dictionary having revealed the rather pretentious word "gyroscopic" to mean turning round, the paragraph in the musketry regulations dealing with this matter may then be reduced to its lowest terms and made to read as follows:—namely, the bullet spins round from right over to left, and in spinning the point works over to the left. *Parturiunt montes, nascitur ridiculus mus.*

There is no compensation for this in the rifle we believe, though there might be. Former editions of the musketry regulations laid down the amount of deviation due to drift to be eleven inches at 1,000 yards and more than double that at 1,200 yards. At the R. S. A. Factory it was found that if two rifles of opposite twists, but otherwise similar, were fired with their lines of sight parallel, that the bullets struck the target 15 inches further apart than the rifles were. These figures showed that drift had no effect on the bullet to speak of, until its velocity had greatly decreased; that it took effect as the bullet was dropping; and that at long ranges the error was largely increased. According to "Combined Training," distant infantry fire may begin at a range of 3,000 yards, at which distance the effect of drift is so great that it might be measured in yards. Yet in the sighting of the rifle it has been ignored altogether. A 7½ inch gun was fired at Shoeburyness with an elevation of 40°. The projectile which weighed 380 lbs went 20,000 yards, and the drift amounted to 1,000 yards. If a rifle were fired at an extreme range, the culminating point might be as much as 2,000 yards away from the firer. Towards the end of this long ascent the velocity would be sufficiently reduced for drift to take effect. But it carries the bullet to the left when the latter is falling, and therefore it ought to carry it to the right when it is rising; and we might reasonably expect to find the culminating point in these cases somewhat to the right of the line of sight. To a dropping bullet the resistance of the air comes partly from underneath so it rolls over in the direction of its movement at that point, namely, left under to right. But when the resistance comes partly from the top on which side the bullet is turning from right over to left, the air ought to tend to deflect it to the right. Whether this is so or not is hard to say, but in any case the deflection would be very slight as the average velocity from muzzle to culminating point would be too great to allow of much effect. We have not heard of any attempts having been made to neutralise this final deviation

of the bullet by the displacement of sights or other means. The error of jump may be taken as proportionate to the range, whereas that of drift cannot be ; so that although a fixed displacement acts in one case, a sliding scale of compensation would be required in the other. The phenomena of drift and jump might then be omitted altogether from the musketry regulations except in so far as they were required to explain the reason for any peculiarities they themselves had brought about in the construction of the rifle.

Now with regard to the other things which we are told affect the bullet in its flight. Strictly speaking, the sighting of the service rifle is only accurate when the barometer is at 30 inches and the thermometer at 60° F., and when the rifle is fired on the sea level, in dead calm weather at a target on the same horizontal plane as the firer. Any other conditions are abnormal for which due allowance has to be made. It is laid down that less elevation will be necessary on a hot, wet, or dull day ; firing up or down hill, or in mountains or when there is a following wind. Also that more elevation will be required after firing many rounds in rapid succession, or with fixed bayonets. It is worth while considering what practical utility there is in this, even supposing it to be remembered in detail ; and whether any given set of conditions in the field could affect fire to any serious extent. Let us suppose a very hot day in Afghanistan, at an elevation of 5,000 feet, and that the temperature is 105°. At 1,000 yards these conditions, according to the formula, would make a difference at the outset of 115 yards, *i.e.*, the correct sighting would be 885 yards. As a set-off against this however, the barrel would at once become overheated, which would make more elevation necessary, the effect of barrel-heating not being considered in any formula. This is an extreme case where the heat and altitude combined would outweigh other conditions, and where some reduction would be obvious. The exact sighting would however be determined in the field by observing the effect of volleys, and the great heat in the case quoted would probably make sure of the ground being suitable for ranging purposes. Conditions, however, would rarely make as much difference as in this instance ; for it must be remembered that they do not all act in the same way, and that they generally tend to cancel one another. Going up hill, for instance, the thermometer falls : but the barometer falls too, which helps to neutralise it.

The bare knowledge of how the various conditions may affect elevation would be of no use without instruments and calculations ; and even, then, could not give better results than good volleys. After all nothing could affect the flight of a bullet like the firer. His personal error is far greater than any that could be caused by the most unfavourable combination of physical and atmospherical conditions. In every company there are men who, if they are not looked after, will fire their first shot with their sight-protector still on ; or who, at long ranges, will invariably forget to raise the leaf after having adjusted the slide. Again, supposing a man fires at 500 yards and gets an inner cutting the ring at 12 o'clock ; that he " bobs " at the next shot, and cuts the inner ring at 6 o'clock. These two shots are of equal value, but the vertical interval between them is equivalent

additional argument in support of the proposed change, from a railway point of view, is that, whereas the Railway Transport officer would remain and be always get-at-able to promptly rectify or adjust error or omission, the commanding officer of a unit, once he gets away on service, is a hopeless quest. And it would add to the effectiveness of the change if the powers of the Railway Transport officer embodied such latitude as would enable him to reciprocate in the give-and-take which there should be between the two authorities.

IV. Want of knowledge on the part of Regimental authorities of the capacity or requirements of the railway—Such instances as the following were by no means uncommon :—

Not knowing how many men to put into a compartment of the various carriages. (At night the figures marked on the carriages cannot well be seen, unless searched for) Inability to load their guns, etc., into the regulation number of trucks.

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V. The want of somebody to take the responsibility for departures from red-tape bonds.—Although it is universally admitted that in time of stress no rule-bound official can hope to succeed, yet the tendency undoubtedly is to get somebody else to break the rule. There is no more rule-bound department in existence than the Commissariat Accounts Department, and the Railway Transport officer must have the power to deal with all cases that arise. One well-defined instance which may

be taken by way of example is the rule that all railway accommodation provided in excess of what the warrant justifies must be either paid for in cash or be entered on the warrant. There is as much trouble made over a matter of a few annas as there is over hundreds of rupees. And, as a rule, neither of the required courses recommends itself to the commanding officer whose arguments are many and varied and often not unreasonable. The Railway official has either to let the excess go and trust to subsequently recovering the amount through much travail of correspondence, or risk a possibly violent conflict by forcibly detaining the excess. These matters should be dealt with by the Railway Transport officer, and, if he is unable to persuade the commanding officer to do what is needed, he should have the power to certify across the warrant that the excess was persisted in, and the case should thereafter be one for adjustment between the accounts officer and the commanding officer. At present, the adjustment of the whole account with the railway is deferred until that side issue is settled, and not only that, but the railway is most unfairly saddled with the task of recovering the amount or withdrawing the claim.

These, but briefly outlined, are the main directions in which an efficient and tactful Railway Transport officer would be of the greatest possible assistance to a Railway superintendent in working a mobilisation traffic through. It will be clear that, from a railway point of view alone, the scope of his duties will involve a considerable amount of work, with a not unreasonable amount of responsibility, and will require that he should be in constant touch, either personally or by qualified deputy, with the work going on at the railway station throughout the 24 hours. For that reason his office should be located at the railway station, conspicuously marked out so that even new comers would have no difficulty in finding it; and a sufficient establishment should be maintained during the night also, so that all vouchers or documents that may be needed can be provided at once, and not be left to the day staff. Arrears so started soon become hopeless.

In regard to the training through which a Railway Transport officer should go in order to qualify him for the position which it is proposed he should hold, all that can be here dealt with is his railway training, which must, of course, be subject to the military requirements of his position. He should have at least 6 months of training, to be divided between a Railway District Superintendent's office, and an Examiner of Commissariat Accounts' office—four months being allotted to the former and two months to the latter, both of which should be periods of instruction by competent officials, and not be merely time spent in picking up of his own accord such information as he thinks may be useful. In the railway office, his instruction should embrace: the capacity of the railway with which he is to be concerned, the strain upon it which mobilisation involves, and the

margin, if any, upon which he could draw; the effect upon its resources which every demand that he is likely to make will have, and the true essential to the preparation for, and the carrying out of such demands; the facilities available for the entraining and detraining of troops of all arms at every station within his control and the considerations which are thereby imposed upon any demands he may make; the system of working and its limitations, and the result of a break down; the necessity for the various forms and documents which are required, and the uses to which they are put. These, and the many details incidental to each, should form the ground work of his instruction, aided by such practical illustrations as the ordinary working of a railway will afford. And then a couple of months' instruction in the accounts office should enable him to grasp the reasons for the existence of the various forms, the uses to which the details they contain are put, and the consequences of any failure to furnish them. And even, if conviction is not carried to his mind, he will, at least, have learnt that the demands of that department are inexorable, and that he will do well to ensure that the work which goes through him gives no ground for its rejection.

Although there are admittedly difficulties in the way of doing so, and the matter is one entirely for the Military department, there can be no doubt of the desirability—the necessity almost—for the Railway Transport officer and his establishment to be ready in working order to meet a mobilisation whenever the need arises, instead of their being hastily gathered together after the need has arisen; and, in the same manner, it is impossible to lay too much stress upon the fact that the framing of the duties of a Railway Transport officer must be the result of a well thought out, and deliberately adopted scheme, and that for reasons which it is surely unnecessary to detail, a series of haphazard and piecemeal additions to his duties as occasion suggests can only result in disappointment and failure.

THE RULING PASSION.

BY CAPTAIN C. C. B. MURPHY, SUFFOLK REGIMENT.

The provisional Musketry Regulations for 1903 in the chapter which deals with the theory and powers of the rifle, lay some stress upon the necessity of being acquainted with the various conditions which tend to affect elevation. Musketry has now become a subject of paramount importance ; but the object of it is to teach an unscientific man to hit what he shoots at, which must assign to it somewhat narrow limits. The trajectory of a bullet might of itself be made the thesis of an advanced mathematical treatise ; in fact it would not be possible to stray far in any direction without getting into the quicksands of science from which the great majority of the readers of the musketry regulations would find it hard enough to extricate themselves. The subject, so far from being made either scientific or comprehensive, should be all simplicity ; and as soon as a writer or a lecturer on it loses sight of this fact, he at once begins trying to raise those he is addressing to his own level instead of descending to theirs ; and while the former may vary, the latter must always remain the same. It will however be necessary for the purposes of this article just to touch on the theories of the subject.

Whatever has been included in the provisional musketry regulations is presumably deemed to have a practical value either on the range or in the field. For if anything had been inserted for examination purposes only, it would have been almost equal to an official recognition of the antagonism between theory and practice. It is therefore intended to discuss part of the matter of the chapter referred to above and to enquire what value the knowledge of it would be to the soldier in the field.

It is a curious thing that a school of musketry, which might be better described as a seat of teaching rather than of learning, should invariably try and persuade its students that they are working at an abstruse subject. It is however a sign of the times. The fact of the matter is we are not content with being simple soldiers ; we must be scientists too ; and the modern school will have us believe, at all costs, that the army is a learned profession.

Like most other things musketry is in a transition stage. It has many debatable points, and could furnish matter for much controversy. Whenever a question is raised we look to the regulations for a ruling on it ; and in order to avoid such a thing as a moot point, they give decisions which are not always well thought out. These however become embodied in the school of musketry dogma, and are often somewhat roughly handled by subsequent investigation. Considering then, that many of their theories are mere conjecture, a good deal of attitude might reasonably be expected in examinations ; and any

answer which is not directly opposed to established principles should be marked according to its soundness, even though it be somewhat heretical. The majority of formulæ in the "Text Book for Military Small Arms and Ammunition" are more or less empirical and some of them are very rough without being correspondingly simple. Where any calculation involves a mathematical operation that is at all complicated, why not leave it out altogether? A knowledge of the ballistic tables and angles of descent will not help to make a man a good shot any more than a knowledge of dynamics will help him to be a golf-player.

As soon as the phenomenon known as *jump* began to be recognised, the text-book was forced to offer some explanation of it. It pointed out how the explosion in the chamber gave the barrel, near the breech, a tendency to rise which would depress the muzzle just as the top of a fly-rod would dip if the butt-end were jerked upwards. The next paragraph had better be quoted *verbatim*. "The jump of a rifle has here been treated as if it were purely in a vertical direction; but there is often present a certain amount of lateral variation depending both upon the charge used and the position adopted for firing." This was of course lame in the extreme. It conveyed the idea that the jump was due to the *explosion*, and gave no reason for the lateral variation which was the most important part of the whole thing, as will be seen later on. As a matter of fact jump is due to something else. The great pressure with which the hard-coated bullet is forced into the grooves, combined with the high velocity at which it is driven through the barrel, sets up in the latter a peculiar gyratory motion which is distinctly visible in a photograph, and which gives to the bullet a sort of upward flick to the left as it leaves the muzzle. Jump is due therefore to centrifugal force.

Now let us suppose a heavy weight to be fastened rigidly to the muzzle of the rifle when it is fired, and see what effect we might expect it to produce. At the instant of the explosion of the charge, the barrel would begin to gyrate as has been already shown. This delicate motion however would expend itself in overcoming the inertia of the dead mass attached to the end of the barrel, so that the upward and leftward flick already referred to would not be imparted. The bullet would therefore fall short, and owing to the displacement of the foresight to the left, would be deflected to the right. The sword-bayonet weighs just under one pound which is more than one-tenth of the whole weight of the rifle, and when fixed produces exactly this effect. Thus if you were firing at 800 yards with fixed bayonets, you would have to aim one foot to the left of the object, and adjust your sight to 860 yards.

After having gone into these details with the recruit and explained to him the niceties of them, you will perhaps give him some practical instruction about the use of the bayonet and the fixed sight. He will be taught on the least whisper of "cavalry!" to fix both his sight and his bayonet, *no matter how far away the cavalry may be*. This certainly sounds odd, but it is really very practical and would produce undoubtedly the best results. If a man were to fire kneeling

on level ground with fixed sight and fixed bayonet, and aim at the ground line 500 yards off, his bullet would hit the ground somewhere about 400 yards away from him. Now instead of at the ground line, suppose him to fire at the head of a cavalryman 800 yards away under the same conditions. The probabilities are that the bullet would at any rate reach the horse; and if an extended line were ordered to assemble to meet a charge of cavalry it is very doubtful whether they would require even as much elevation as this by the time they got their first volley off, although the cavalry might have been as much as 1,000 yards away when first noticed. Fixing bayonets and altering sights under these circumstances would only tend to flurry troops, and would lessen their fire effect; and therefore all this must be finished with before the volleys commence and the necessary elevation for the first one or two at the most, obtained by aiming high. This may seem rather a rough and ready way of doing things, and yet it produces the best results, a fact which ought to be rather damaging to the theorist's case.

No two rifles however much alike will shoot the same; just as no two yachts though built on exactly the same lines will ever sail alike. It is not surprising therefore to find that the radius of gyration varies slightly even amongst rifles which have been turned out by the same factory. The minutest differences in the composition of the steel in the barrels, or in the finish of the grooving, or in any other particular might help to account for the idiosyncrasies of rifles, dealing as we are with almost infinitesimal quantities. For service purposes however, the error due to jump was taken to be constant; and a displacement of the foresight (at first, of the barleycorn only) $\frac{1}{16}$ of an inch to the left was found to reduce the error sufficiently to produce fairly accurate results. Allowance has therefore been made in the barrel sights for jumps, but for some reason in the dial sights there is no compensation whatever. Considering that we are enjoined to use the latter sighting at ranges of 1,600 yards and over, where the lateral error is greatest, it is difficult to understand why it has been ignored. Nor is this all, for the nose-cap now in use in the Lee-Enfield rifle actually plays into the hands of the error. It will be remembered that in the first issues of the .303 rifle, the upper band was a separate part, and could be tightened if necessary. The barrel could therefore be always kept in its place. But in the Mark II and all rifles of subsequent patterns, the upper band and the nose-cap form one component which has to be made loose enough to be slipped over the foresight, and to allow the barrel to expand when heated. The result is a certain amount of play in the barrel at a point where it ought to be held rigid at all costs. There is no means of adjusting it; and in many of our newest rifles, namely, those supplied by the B. S. A. Company, there is considerable play which must surely be a serious shortcoming. The new nose-cap may perhaps be stronger and cheaper, but it is certainly inferior to its prototype in this respect.

The regulations require a rifle that is to be tested to be first of all examined by an armourer for the purpose of ensuring, amongst

other things, that the barrel is not unduly gripped by the nose-cap or bands. They do not seem to think the converse of the situation to be worth considering; namely, undue play. Perhaps the nose-cap of the new rifle with which we expect to be armed shortly will be fitted with a spring clip which would keep the barrel rigid whilst it would admit of any amount of expansion at the same time.

The old theory about jump, though of mushroom growth, lasted for several years; and any candidate giving the modern explanation, would have done so at the risk of his success in the examination. Only those who went on peacefully enunciating the illogical doctrines of the fly-rod school passed with distinction. Another inherent error in the rifle is that known as drift. The dictionary having revealed the rather pretentious word "gyroscopic" to mean turning round, the paragraph in the musketry regulations dealing with this matter may then be reduced to its lowest terms and made to read as follows:—namely, the bullet spins round from right over to left, and in spinning the point works over to the left. *Parturiunt montes, nascitur ridiculus mus.*

There is no compensation for this in the rifle we believe, though there might be. Former editions of the musketry regulations laid down the amount of deviation due to drift to be eleven inches at 1,000 yards and more than double that at 1,200 yards. At the R. S. A. Factory it was found that if two rifles of opposite twists, but otherwise similar, were fired with their lines of sight parallel, that the bullets struck the target 15 inches further apart than the rifles were. These figures showed that drift had no effect on the bullet to speak of, until its velocity had greatly decreased; that it took effect as the bullet was dropping; and that at long ranges the error was largely increased. According to "Combined Training," distant infantry fire may begin at a range of 3,000 yards, at which distance the effect of drift is so great that it might be measured in yards. Yet in the sighting of the rifle it has been ignored altogether. A 9.2 inch gun was fired at Shoeburyness with an elevation of 40°. The projectile which weighed 380 lbs went 20,000 yards, and the drift amounted to 1,000 yards. If a rifle were fired at an extreme range, the culminating point might be as much as 2,000 yards away from the firer. Towards the end of this long ascent the velocity would be sufficiently reduced for drift to take effect. But it carries the bullet to the left when the latter is falling, and therefore it ought to carry it to the right when it is rising; and we might reasonably expect to find the culminating point in these cases somewhat to the right of the line of sight. To a dropping bullet the resistance of the air comes partly from underneath so it rolls over in the direction of its movement at that point, namely, left under to right. But when the resistance comes partly from the top on which side the bullet is turning from right over to left, the air ought to tend to deflect it to the right. Whether this is so or not is hard to say, but in any case the deflection would be very slight as the average velocity from muzzle to culminating point would be too great to allow of much effect. We have not heard of any attempts having been made to neutralise this final deviation

of the bullet by the displacement of sights or other means. The error of jump may be taken as proportionate to the range, whereas that of drift cannot be ; so that although a fixed displacement acts in one case, a sliding scale of compensation would be required in the other. The phenomena of drift and jump might then be omitted altogether from the musketry regulations except in so far as they were required to explain the reason for any peculiarities they themselves had brought about in the construction of the rifle.

Now with regard to the other things which we are told affect the bullet in its flight. Strictly speaking, the sighting of the service rifle is only accurate when the barometer is at 30 inches and the thermometer at 60° F., and when the rifle is fired on the sea level, in dead calm weather at a target on the same horizontal plane as the firer. Any other conditions are abnormal for which due allowance has to be made. It is laid down that less elevation will be necessary on a hot, wet, or dull day ; firing up or down hill, or in mountains or when there is a following wind. Also that more elevation will be required after firing many rounds in rapid succession, or with fixed bayonets. It is worth while considering what practical utility there is in this, even supposing it to be remembered in detail ; and whether any given set of conditions in the field could affect fire to any serious extent. Let us suppose a very hot day in Afghanistan, at an elevation of 5,000 feet, and that the temperature is 105°. At 1,000 yards these conditions, according to the formula, would make a difference at the outset of 115 yards, *i.e.*, the correct sighting would be 885 yards. As a set-off against this however, the barrel would at once become overheated, which would make more elevation necessary, the effect of barrel-heating not being considered in any formula. This is an extreme case where the heat and altitude combined would outweigh other conditions, and where some reduction would be obvious. The exact sighting would however be determined in the field by observing the effect of volleys, and the great heat in the case quoted would probably make sure of the ground being suitable for ranging purposes. Conditions, however, would rarely make as much difference as in this instance ; for it must be remembered that they do not all act in the same way, and that they generally tend to cancel one another. Going up hill, for instance, the thermometer falls : but the barometer falls too, which helps to neutralise it.

The bare knowledge of how the various conditions may affect elevation would be of no use without instruments and calculations ; and even, then, could not give better results than good volleys. After all nothing could affect the flight of a bullet like the firer. His personal error is far greater than any that could be caused by the most unfavourable combination of physical and atmospherical conditions. In every company there are men who, if they are not looked after, will fire their first shot with their sight-protector still on ; or who, at long ranges, will invariably forget to raise the leaf after having adjusted the slide. Again, supposing a man fires at 500 yards and gets an inner cutting the ring at 12 o'clock ; that he " bobs " at the next shot, and cuts the inner ring at 6 o'clock. These two shots are of equal value, but the vertical interval between them is equivalent

to a reduction in elevation of 100 yards—which is about double that which could be produced at the same range by the combined effects of altitude, wind, temperature, and barometric pressure, under any circumstances. If then a man will make the equivalent to an error of 20 per cent. in elevation when he is shooting peacefully for prizes on the range over a measured distance, and at a geometrical target specially designed to be conspicuous, it does not require any flight of imagination to picture what would happen in the field when the firer is being shot at by an invisible enemy, and from a direction often so unsuspected that he does not know on which side of a stone to take cover. It would be extremely interesting to go down to the range with a thermometer, an aneroid barometer, and an anemometer, in addition to the usual box of tricks generally carried, and find out the true elevation on the firing point by solving the equation—

$$X = \frac{R}{1,000} \left\{ (t-T) + n + f \frac{10V}{4} \right\}$$

your own instruments giving you the local values of t , A , f and V .

C'est mathématique, mais ce n'est pas la guerre, and could not be of any use in the field ; it would be more likely to prove the little knowledge that is a dangerous thing. It will take the soldier all his time to become a good snap-shot and a good judge of distance, which ought to be his most coveted acquirements, and when he has learnt these, he will pick up a range without any assistance beyond that of his rifle. Therefore in considering the effects of weather and locality we are dealing in comparison with other things, with negligible quantities. It is the personal, and not the conditional, error that must be overcome ; and it is skill and not science that will win the battles of the future.

THE MOST SUITABLE WAY OF TRAINING BRITISH AND NATIVE SOLDIERS AS DESPATCH RIDERS AND FIELD MESSENGERS.

BY CAPTAIN F. C. LAING, 12TH PIONEERS.

The necessity for the despatch rider and field messenger has much increased during recent years, and the cause is not far to seek. In modern campaigns, where very large numbers of troops are engaged, the area over which they operate is considerable, and it is necessary for commanders in the field to keep in close touch, not only with each other, but with the government of the country on whose behalf the campaign is taking place. As political and military considerations march together, we can never expect to see in the future an army commanded by a General, supreme in both military and civil power; and as it may safely be concluded that the field telegraph is insufficient for very lengthy communications, the need arises for reliable men to carry despatches and messages. It is obvious that the term "rider" in this connection is not confined entirely to the horse-rider, but to any mode of transport suitable to any particular country, and it is in this wider sense that I am making use of the word.

Let us divide the subject under three main heads—

- I.—The means of transport.
- II.—Organisation.
- III.—Method of training the soldier.

I.

The means of transport.

The *terrain* over which field operations take place is such an important factor in determining the vehicle to be used that it deserves some attention, and although the scheme outlined later allows for diversity in the physical features of the theatre of war, I have thought it sufficient to apply its principles to a campaign on the North-West Frontier, partly because such a campaign is an ever present possibility against a civilized or semi-civilized enemy, and partly because the country over which the troops would have to proceed is so different in its natural features that it will allow for the employment of all the various vehicles of transport which will be necessary for our despatch riders, and field messengers.

It is generally conceded that for the defence of India, however desirable it might be strategically to hold the line of the Indus, a more

forward one will be chosen, and we may therefore conclude that from the ultimate base, *i.e.*, India, to the advanced depôts and troops beyond the frontier, a line of communications will be established which will be partly through level tracts of country with few obstacles, partly across broken and intersected ground, and partly over rugged and mountainous districts; in the former strategic railways will run, and in the two latter, roads, paths and rough tracks will be the only means of inter-communication.*

The swiftest and surest way of sending despatches is by rail, but this refers principally to the mail service in India proper, and not to the light railways on the frontier; these will be fully occupied in the carriage of stores; and as we are now contemplating a campaign of major proportions, it is not to be expected that the troops themselves even will be conveyed by rail beyond the termini of the standard gauge lines.

It will be quicker to march the troops not only along the available roads, but on as broad a front as possible across country: along these roads and tracks and between the troops the despatch rider and field messenger must travel

Let us now examine the means by which such communication is kept up: but before doing so, let us differentiate between what are known as despatch riders and field messengers. It would be possible perhaps to view the action of both as identical, but it may be more correct to assign the term "despatch rider" to the man entrusted with the more lengthy communication between commanders in the field and between them and the Government; and "field messenger" to the man who is sent backwards and forwards between the smaller units of an army, not only in the field of operations, but actually during the progress of a battle. But whatever their designation may be, there is no reason to suppose that despatch riders and field messengers would be trained very differently: this point will be touched on later. To return to the question of means of communication. So long as good roads are available, there can be small doubt that the despatch rider will best be mounted on a motor-bicycle, and next to that an ordinary bicycle; as far as we are concerned at present, the good roads are the metalled ones in ordinary stations, and the single long trunk road joining them together; as troops and stores will be moving along the latter, the bulky motor-car is unsuitable, but the bicycle is an ideal form of vehicle. The motor-bicycle is superior in speed and causes less fatigue, but it is liable to more mishaps than the ordinary bicycle. We may, however, conclude that both will be made use of along all metalled roads, and possibly along the better preserved country-roads and tracks, but for the two latter we must chiefly trust to horses, ponies and mules; riding animals will be exclusively used in broken, intersected country, and principally in mountainous country.

To the animals already mentioned we must add camels; they are particularly suited to long distance travelling, require little looking

* Actual communication is here referred to, and not that obtained by means of telegraphy and visual signalling.

after, and can eat almost anything ; the hill species can be also used in hilly tracts ; their chief disadvantages are that their pace is somewhat slow, and they require to be handled by natives accustomed to their ways. The utility of the horse is chiefly confined to fairly level country where pace is wanted, and obstacles have to be crossed, such as ditches, banks, etc. The rider for this special purpose must, moreover, be exceptionally daring and skillful. Ponies and mules are the most reliable in hilly and mountainous country : they are hardy, sure-footed, and give little trouble, especially the latter in regard to food and looking after.

The above half dozen modes of locomotion thus briefly mentioned may be taken as the chief means by which despatches and messages will be most conveniently carried to and fro in times of war : the use of dirigible air ships is at present so uncertain that we may safely leave them out of our calculations, though it is not altogether improbable that they will be used in future wars and used effectively for communication between armies and their bases. Campaigns in which we are likely to be engaged will be chiefly confined to mountainous country ; troops and stores will have to proceed from the different bases by road as well as rail, and the level tracts between rail-head and the base of operations will readily lend themselves to the use of cycles and to cross-country despatch riders.

II.

Organization.

The first principle of the organization, I propose, is that of having a special corps of despatch riders and field messengers for the following reasons :—The training of each man will have to be careful and prolonged under specially selected officers ; to obtain the best results the centres of instruction should be chosen for the facilities they afford for such training, and these will not always be obtainable at stations where regiments are quartered. The supposition that each regiment is, and should be, independent in every way is fallacious, because men regimentally trained as signallers, scouts, etc., are employed as required by the exigencies of the moment, and not necessarily with their regiments at all ; and it is perfectly simple to attach to corps on service as many signallers, scouts and, in future, despatch riders and messengers as may be required ; for it must be remembered that these men are specialists, and, excepting scouts perhaps, not meant to fight, and there is no good purpose served by having non-fighting specialists borne on, and included in, the fighting strength of regiments.

Let us suppose then, that this new corps is about to be formed ; we must next consider what men are to be selected, where they are to be trained, and how.

The selection of men must in no case be haphazard ; for instance, the man who can cycle well is not necessarily a good horseman ; we therefore go to cavalry regiments, British and Native, for our cross-country riders, to Native and Imperial Service Cavalry for our camel riders, to the Infantry for our pony and mule riders ; and as bicycles

are simple and easy machines to ride, it would be advantageous for all members of the corps to learn to ride and take care of them; the cycle generally used should be fairly cheap, strong cushion-tyred, and with a comfortable saddle, not the hard uncomfortable one sold, with the cheaper sort of machine.

Having chosen our men, the next thing is to locate them in the most suitable stations for training: these may well be at such places as Rawal Pindi, Umballa, Poona and Bangalore, where forage is easily procurable, good roads abound and practical training with troops can be got every year. As the scheme develops, subsidiary stations can be found in or near the hills where different methods of despatch riding can be practised.

At the outset we should have altogether eight sections—four British and four Native—and each section would be sub-divided into—

(a) Cross-country horsemen.

(b) Pony and mule riders.

(c) Camel riders.

(d) Motor-cyclists, including cycle experts mounted on better class cycles with the pneumatic tyres, for express despatches on good roads.

As the course of training is a wide and comprehensive one, we naturally want an adequate staff of officers and non-commissioned officers to carry it out. The establishment, though capable, of course, of reduction and expansion as circumstances require, might be somewhat as follows :—

For each centre a Commandant, assisted by eight British officers and details, as below.—

Sub-section.	British officers.	Sergeants.	Corporals.	Men.	—	British officers.	Native officers.	Dufadars or Havildars.	Naicks.	Men.	—
A ...	1	1	1	25	From British Cavalry.	1	1	1	1	25	From Native Cavalry.
B ...	2	1	2	50	From British Infantry.	2	1	1	2	50	From Native Infantry.
C ...	...	...	...	...	.....	...	...	...	1	25	From Native Cavalry.
D ...	1	1	1	30	From British Cavalry or Infantry.	1	1	1	1	20	From Native Cavalry or Infantry.
Total ...	4	3	4	105	.....	4	3	3	5	120	.....

It may be thought that this number is much in excess of requirements ; but if it is taken into consideration that a major campaign will mean the employment of more than 100,000 men with lines of communication running for hundreds of miles through rough and inhospitable country, and that in such regions the despatch riders and messengers will travel in pairs, the total, allowing for casualties, is more likely to be increased than decreased.

III.

Method of training the soldier.

The method of training can best be discovered by a consideration of the requirements of each section of the corps, and the results arrived at are as follows:—

- (a) The cross-country rider is chosen on account of his superior horsemanship, as he must be prepared to cross the stiffest country with rapidity and without coming to grief ; he must be constantly made to negotiate a series of obstacles of much severer type than those found in the ordinary cavalry riding school, and he must be periodically sent across country on the principle of the point-to-point steeplechase and made to do long distance rides ; he should be allowed a second charger.
- (b) The remarks above apply to the pony and mule rider to a certain extent only : his rôle is not so much to ride across country like the hunting man, but to follow rough paths, scramble up and down ravines, and cross broken ground some how : the rider need not be a skilled horseman, and we can easily obtain the requisite number from our infantry regiments, and the usual mounted infantry course would be quite adequate for our purpose.
- (c) The camel rider requires to be accustomed to the animal from his early youth, and the camel sowars of the Indian and Imperial Service Cavalry would be most suitably trained as despatch riders : knowledge of his beast and its care are his principal needs ; the animal requires little special training beyond what it receives during the daily routine of station life.
- (d) The chief difficulty with regard to motor-cars and cycles is their complicated machinery, and out in this country apparently, the supply of petrol ; but whatever make of machine is adopted, the wisest course at first would be to establish an expert from England at each centre, who would train the men chosen for this special branch, until the latter became sufficiently expert to teach others.

Having discussed the training of our sections with reference to their individual peculiarities, we must next turn our attention to the training of the men generally, for, in addition to skill in riding, the despatch rider and field messenger require other accomplishments. First of all, he must be unusually intelligent; his wits will have to constantly stand him in good stead, and so will his eyes; he must be steady and sober, bold, without being rash.

He must be taught sketching, but more with a view to map-reading than map-making; he must be able to find his way by compass and by the stars; he must be able to follow any track, and as a horseman be able to apply simple remedies in case of need, and put on a horse's shoes: and as a cyclist be able to carry out all ordinary repairs. He will have to rely on himself through miles of inhospitable country and must be able to kill, prepare and cook his own food. Although not intended to fight, he must be a good shot, and finally, but by no means least of all, he must be physically active, strong and healthy.*

So far it will be seen that we have concerned ourselves chiefly with despatch riders; we have now to consider the question of field messengers: the latter will, like the former, be mounted, when possible, but in actual battle the messenger must principally trust to his legs; roads and paths will not always be available, and he must learn to travel silently, warily and swiftly, for on him will frequently depend the most vital questions of the moment, and on his endurance and powers of finding his way through known and unknown country will the success of the Commander's plans rest. The scout and field messenger are closely akin, and from the ranks of the scouts we may be able to draw the best messengers.

A brief mention may be made as to the equipment of the corps. As regards weapons, a carbine and 50 rounds of ammunition would probably suffice for self-protection. A leather case with water-proof cover for carrying despatches and, in addition, a water-proof lined inner pocket, a field-glass, compass and note-book with pencils, rubber and clasp knife, haversack, water-bottle, cooking utensils and one change of under-clothing and a long water-proof or cloth cape would complete his equipment. The field messenger, having usually to travel on foot, would probably be adequately provided if he carried a magazine pistol, 20 rounds, a "kukri" or sheath-knife, with despatch case, etc., as above, and a short cape. With a corps formed on the principles roughly outlined above, there seems to be no need to legislate particularly for campaigns waged in other theatres of war; the training of officers and men would be the same in whatever part of the globe they took place; at the same time, any scheme of this nature would not be complete without some reference to the employment of men taken from in, or near, the country in which warfare is going on; in most campaigns we have been engaged in, the aid of "friendlies" has been utilized in many ways, and particularly as messengers, and it is therefore conceiv-

* A knowledge of signalling would be found most useful, but, in view of the number of other pressing needs, it might be confined to reading and sending messages at 8 to 10 words a minute.

able that at the subsidiary training stations already alluded to, and during the progress of a campaign, a percentage of "friendlies" will be trained as field messengers, and sometimes even as despatch riders. In countries where the roads are bad and the water-ways numerous, the most rapid means of transit is by boat, and where steam or electrically propelled vessels do not exist, the local boatman can do good service; and it may naturally be assumed that when despatches and messages have to be sent by hand, the swiftest, surest and most available means of transport must be pressed into the service of the rider whether it be a sixteen-hand waler or a Canadian canoe.

SUGGESTIONS FOR THE EMPLOYMENT OF MACHINE GUNS WITH CAVALRY AND MOUNTED INFANTRY.

BY CAPTAIN E. M. J. MOLYNEUX, D.S.O., 12TH CAVALRY.

That wonderful three years' camp of exercise, known as the South African War, has thrown a flood of light upon many hitherto doubtful questions of military service: and to no branch of the service has it been more prolific in instruction than to the mounted troops. The incessant fighting with enemies almost invariably mounted, so untrammelled by regulation or tradition that they were able to evolve an admirable system of guerilla warfare with no other guide than their own strong common sense, and with generations of experience in irregular fighting and originality of mind, was certain to be productive of useful additions to our own military knowledge. "*Fas est ab hoste doceri*"; we may with advantage take a few obvious hints from the clever and resourceful peasants whom we commenced by despising and so very soon learned to respect.

The first point to which I wish to call attention is the extreme usefulness of machine guns in reconnaissance; and I may mention that the use of these weapons, as suggested, is not theoretical, but has stood the test of actual experience and was indeed the outcome of the needs of the moment. In a previous article I have already described the method employed for screening advancing scouts by the use of the colt or maxim gun on a galloping Dundonald carriage as employed in Thorneycroft's Mounted Infantry, and will briefly refer to it again. In the case of a hill, farm, orchard, or other position, which was suspected of containing an enemy, scouts were sent round the flanks of the place to either approach it or take up points of observation in rear of it—a proceeding nearly certain to draw fire from the enemy, if the place were held. Before the scouts started, however, the maxim, concealed and brought up under cover of several men riding in a cluster round it, had been trained on the place, and the gunner, astride of the trail and with his finger on the trigger, and the traversing action set, waited only for the first shot to be fired to sweep the place from end to end with a hurricane of unsuspected fire, under cover of which the scouts galloped back unhurt in every case, except where the first shot fired had told: such is the unsteady effect of a sudden storm of bullets from an unexpected quarter.

The above is a use to which the pompom may be put, and with even greater effect on account of the more terrifying effect of the bursting projectiles, especially upon horses, and the power which this marvellously accurate little howitzer possesses of searching cover from its high trajectory. It also possesses the very great advantage

of almost undiminished accuracy at very long ranges up to 6,000 yards, by virtue of which, in country where cover is scanty, it can be brought into action at such distances as to reduce to a minimum the risks both of capture and of punishment at the hands of rifle men. Other uses of the "pompom" on reconnaissance and similar detached duties must recur to any who saw much of the irregular fighting in South Africa.

A mounted man is seen to ride up to a little knoll in the distance; he disappears behind it. On nearer approach, fire is opened on our advancing scouts all along the front too far to right and left to allow of the place being turned. It may be that we are being stopped by half a dozen men; on the other hand, the force in front may be a considerable one, and any attempt at "rushing" may end in a disaster, or at any rate in the loss of half a dozen good scouts, without our acquiring any very accurate idea of what is really against us. Such an impasse is common enough in reconnaissance in modern war, with long range weapons of extreme accuracy and smokeless powder; nor is it always easy to see a way out of the deadlock, without bringing on a serious engagement which is likely enough to be contrary to the instructions received. It is as a means of clearing up such a situation that I would draw attention to the value of the "pompom." Another horseman now rides up and disappears behind the knoll; then one rides away and disappears in the direction in which the enemy's main forces are known to be. No amount of rifle fire directed at the knoll is likely to produce any effect on those who are suspected of being massed on its further side; the skirmishers who fire on us from right and left of it are unseen and cannot be located, being well under cover before our arrival. Perhaps it is only a patrol after all, and there are not half a dozen men behind the knoll! Suppose, however, that there is a pompom with our reconnoitring squadron. From a safe distance, under cover, it opens on the knoll, throwing a belt of shells, with traversing action, just down the further slope. Possibly a dozen frightened and perhaps wounded horses break out on either side of the knoll, followed in a few seconds by mounted men to catch them, then probably an angry crackling of rifle fire on our nearest scouts, who are at once ordered back out of range or under cover. The enemy has been "drawn" at last! Probably there are a good many of them under cover there, so another belt is given them and another, not all to one spot, but so as to search all the cover: the place is made too hot to hold the enemy, and he has no target for his own rifle fire. So, finally, with possibly ten or a dozen horses and three or four men killed or damaged and the whole frightened and exasperated, his squadron leaves its snug cover; in the confusion it is more than likely that it will do something it should not, such as offer a compact target in retiring, or attempt to advance and charge its unseen enemies over unfavourable ground. But in any case, the reconnoitring squadron has got all it wanted in the way of information, and inflicted both moral and material damage on the enemy.

The above little comedy I have seen played more than once, even though the actors on both sides were quite used to the pompom. Its value on reconnaissance has often been amply demonstrated for clearing up a situation which would otherwise be dangerous and costly in life without artillery of higher trajectory than the modern field gun, which it is not always practicable to send up with the reconnoitring troops. Against continental troops, officers and men alike unaccustomed to be under pompom fire, we might safely expect the pompom to justify its existence even more conspicuously, when we remember the consternation it created even amongst our own admirable infantry on its first appearance.

The pompom is valuable on detached duties, but even in actions where infantry and artillery are involved, it may enable its possessors to be of the most important assistance to their own side under such circumstances that, without it, they might have to stand passively by. For instance, an infantry attack is being made on an enemy's position: cavalry are sent to watch the flanks and wait for opportunities of decisive action, but are directed not to join dismounted with the infantry. But they have pompoms; and these little spitfires of marvellous range, even if no one claims for them any very tremendous man-killing properties, though the survivors of Spionkop will convince one that they are very far from innocuous, have a very appreciable effect: and the cavalry on the flank may get chances of doing the enemy a vast deal of damage by a few belts of shells amongst his guns and gunteams, and unsteady the aim of his infantry at the most critical moment of the attack by raking them with pompom fire from 6,000 yards away. And though it is quite possible that the casualties inflicted by pompom fire amongst troops in extended order may not be very numerous, yet we should not forget the adage of a great master of the art of war that the winning of a battle depends not so much on the number of men killed as on the number frightened. Next to killing one's enemy, the most effectual assistance one can render is to prevent his killing one's own side: and no one can deny the effect of the pompom in shaking the morale of those exposed to it. The fire of a party of even veteran infantry, amongst whom pompom shells are raining intermittently, becomes erratic to the point of being almost innocuous, and the task of those attacking them is indisputably facilitated by the fact. It was alleged in South Africa—and there seems every reason to believe it—that the "pompom" was more dreaded by those new to it than even shrapnel fire, though the latter, when effective and well burst, is undoubtedly more destructive. Add to this the mobility of the pompom, the ease with which it may be concealed and the difficulty which artillery find in silencing it even when found, and the formidable nature of the annoyance which the pompom can inflict may be understood, even when opposed—as was so often the case in South Africa—to the heaviest artillery.

But it is in covering retirements that the pompom, with mounted troops, has proved itself to be of the highest utility. In almost every

kind of country retiring troops will find it possible to find places where they can obtain cover for so small a gun, whence they can shell the enemy, without his knowing from what point the fire proceeds, from the comfortable distance of 6,000 yards, checking for the time being every forward movement of any formed body, and causing his artillery to unlimber again and again in the fruitless endeavour to silence their venomous little unseen antagonist. Over and over again during the two years of guerilla warfare in South Africa we have seen heavy convoys and weary commandoes on foundered horses withdrawn into safety under cover of fire from a pompom which it was impossible to locate, and even when found was hardly ever caught. Under similar circumstances, artillery would frequently have been of little or no use to the enemy, for it would have run risks of capture, when seen by the eager pursuers to which the pompom was invulnerable. At the end of the war, in fact, we saw the mobile columns frequently going without artillery by preference, and the Boers accepting the loss of their guns with comparative equanimity; indeed, we know that they had to throw away or bury numbers of their guns, whilst I have never heard of a pompom being jettisoned,—no matter how hot the pursuit. I do not mean to compare them with artillery to the detriment of the latter, with which of course they cannot compete in serious actions: I only mean to indicate that for certain purposes the pompom is useful to a pre-eminent degree.

The pompom is a weapon in every way peculiarly suited to be an adjunct to the cavalry arm: like the cavalry, it excels in mobility and resembles the cavalry in being an arm of opportunity rather than that which we depend upon to decide the issues of a first class action. Its value is strictly in proportion to the skill and ingenuity with which opportunities are made use of for its action rather than upon its own weight of metal and destructive power: and if ably handled, and its limitations understood, all our experience in our last great war lead to the conclusion that in it we have found an invaluable auxiliary for our mounted troops.

SOME SUGGESTED CHANGES IN INFANTRY DRILL

BY LIEUTENANT K. HENDERSON, 1-39TH GARHWAL RIFLES.

Few would attempt to deny or minimize the general excellence of the principles set forth in "Infantry Training, 1902," and no observant officer can have failed to note the wonderful improvement it has effected in our methods of training infantry. This is noticeable, not only in the actual work done, but also in the tone of practical common sense it has been largely instrumental in inculcating throughout the service; displacing the old-time poker-swallowing and perfunctory ideas in favour of an encouragement of intelligent interest and individual responsibility, and thus bringing about, as a natural result, greater keenness in all ranks,—a veritable military *Renaissance* in fact.

On the other hand, there are few changes, especially of such a drastic and radical nature as those brought about by "Infantry Training, 1902," which are not the better of subsequent modification as to detail in the light of practical experience of their working; and no better encouragement of suggestions in this respect is required than the wise foresight which made this edition of "Infantry Training" *provisional*. It is on this account, therefore, that I venture, though with considerable diffidence, to offer the remarks which follow.

The Delhi Manœuvres afforded a very good test of the merits of the *Assembly Formation* as a tactical formation, but I think there were few Infantry Officers who were not disappointed with the results it gave. The reasons for this disappointment appeared capable of condensation into the following:—

- (a) It proved unwieldy to Commanding Officers.
- (b) It appears to go very near, being a violation of the vitally important maxim set forth in "Infantry Training," section 211, which strictly forbids the formulation or practice of a normal form of either attack or defence.
- (c) It is irksome and tiring to the rank and file.

The first of these three would seem to be largely due to the difficulty of cohesion involved by the splitting up of the battalion into 32 small bodies. That precision, which is the essence of close order movements, becomes an impossibility where cohesion is lacking from the start and where inequality of size in sections or companies tends to accentuate the defect.

The second (b) was undoubtedly brought about by a desire to make the formation suitable for rapid extension on a principle which would ensure units not being prematurely intermixed (*vide* "Infantry Training," section 238—2). But this principle seems to have had undue consideration in the evolution of the *Assembly Formation*. A formation of assembly is essentially one suitable for a unit which is *not* in immediate expectation of coming under fire, and therefore capacity for rapid extension and questions of vulnerability are not of paramount importance. A case where a battalion would have to extend unexpectedly without previous instructions must clearly be an exceptional case; and legislation for the exceptional must obviously always give way when it is detrimental to legislation for the normal. If, therefore, a Commanding Officer of a battalion, which is in a formation of assembly, receives orders to form for attack or defence, and he wishes to have one-half battalion behind the other, it is obviously perfectly easy for him to put it there in a moment without being obliged to have it there always. In the same way the important warning against a premature admixture of units on reinforcing having been carefully inculcated, Commanding Officers and Company Commanders might surely safely be trusted to carrying it out without having preliminary formations imposed on them which are detrimental to the fighting powers of their men?

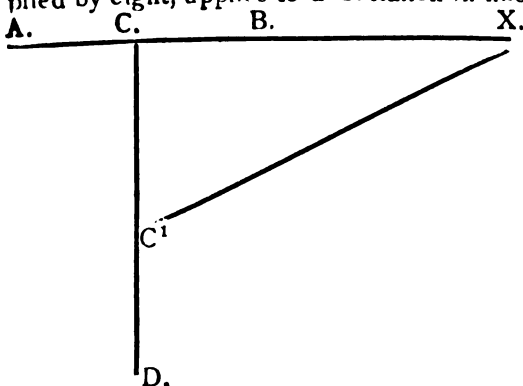
But these first two objections are comparatively unimportant compared with the third (c). The irksomeness of the present *Assembly Formation* to the rank and file seems to strike the keynote of a large question. This is nothing less than the whole principle of drill and battle formations other than extended order. In this connection I have to make what may at first sight seem a drastic suggestion, but I trust the arguments I have to adduce will justify it.

It is to *abolish all formations except multiples or dividends of the company column of fours*, except possibly for certain forms of savage warfare.

All formations which are multiples or dividends of the company in line, *i.e.*, all column, line and echelon formations, involve looking to dressing on the part of the individual soldier. Lateral dressing on the move to a heavily weighted soldier on anything but a smooth parade ground is most harassing. At the Delhi Manœuvres I remember seeing a brigade advancing in expectation of having to attack the enemy in position in the course of the day in line of *Assembly Formation* at 400 yards interval; there was a good deal of ploughed field to cross and obstacles in the shape of ditches, wells and clumps of trees or scrub. I think it was apparent to all regimental officers on this occasion that the *Assembly Formation* "*ne vaut pas la chandelle*." The men were harassed by the inherent difficulties of the formation; and the passage of obstacles and diagonal marches to avoid these or to correct intervals accentuated these difficulties, and in some cases resulted in little short of confusion. Frontal dressing (*i.e.*, covering), on the other hand, is little or no trouble, and column of fours involves a minimum even of it. In fours a soldier

can take (within reason and provided he is not on a very narrow road or in a defile) as much room as he likes without affecting the formation from the point of view of tactical value, discipline, or appearance. He has, in fact, only to follow his leader. In a line his elbow room is an inelastic minimum; and though a fixed cadence, walking in step, and even parade ground, and physical freshness may make it possible to train a man to come as near as possible to walking in a straight line, the slightest fatigue or unevenness of ground will result in his course being more or less zigzag, in his bumping his neighbours, and in the formation being kept only with the greatest difficulty and at the cost of much waste of tissue to the soldier. The *Assembly Formation* is simply a conglomeration of sections in line, and the foregoing reasons therefore apply to it. A battalion in column or echelon of half companies or companies would seem open to reproach for the same reasons, but in a greater degree; while a battalion in line would be even more so.

It might at first sight appear that these suggestions involve a neglect of the principle that one should always move on as broad a front as possible. But this is not so in reality. A company advancing in four small section columns of fours or eight squad columns at intervals equal to their own length is marching on just as broad a front—*practically*—as a company in line. The same argument, multiplied by eight, applies to a battalion in line. Thus, supposing, A. B.



a section in line and C. D. the same section in column of fours. If C. is the position of the centre man in line and C' his position in fours, and his place in a suddenly ordered extension is X, the difference in time it will take for him to reach that position from the

two original formations is represented by the difference in length between XC. and XC'—a negligible quantity. If the case of a flank man be taken, in one case the difference is slightly more negligible, in the other slightly less so. The value of such formations as a preliminary to coming into action or for troops beyond distant range is fully recognized by "Infantry Training" (see sections 203, 216—1 and 237—4), and it is on this account that I fail to see why any formation, having as its basis sections, or half companies, or companies, in line, should ever be necessary except, possibly, for savage warfare of the Soudan or Somaliland type.

It remains, therefore, to suggest a formation which should replace *Assembly Formation* if the arguments adduced against the latter

be admitted. The requirements of such a formation appear to be as follows:—

- (i) Suitability for control by one man.
- (ii) Compactness and mobility.
- (iii) Should involve the minimum of trouble to rank and file consistent with above.
- (iv) Capacity for rapid extension on a principle consistent with units not being prematurely intermingled on reinforcing.

We have not far to go to seek such a formation. The *Quarter Column* moving to a flank in fours, *i.e.*, line of Company Columns of fours at six paces interval, seems admirably adapted to meet the above requirements, and has in addition the merit of simplicity. That it satisfies (i) and (ii) needs no demonstration, and that it does so better than *Assembly Formation* is equally apparent; that it would succeed as regards (iii), where the *Assembly Formation* has so conspicuously failed, has, I hope, been satisfactorily shown above. As regards (iv), the only respects in which the proposed formation differs from *Assembly Formation* are—

- (a) Sections are in fours instead of in line.
- (b) The eight companies are abreast instead of in two half battalions, one behind the other.

From these two differences no advantage in the *Assembly Formation* worth consideration is apparent; while the inadvisability of attaching too much importance to this requirement has already been touched on.

The second proposal I have to make is to *abolish the section as a fire unit*.

It is certain that under fire in extended order no leader can hope to exercise direct control over more than those in his immediate vicinity, *i.e.*, four or five men each side of him. It is therefore recognized that *the squad of from 6 to 10 men is the normal fire unit in skirmishing* (see "Infantry Training," section 150—1).

At the same time, on the rare occasions when close order fire might now-a-days be required, such as in savage warfare, defence of works, or possibly (if the enemy has no artillery) long range covering fire, it is admitted that the requirements of fire control and fire discipline are best furthered by the fire unit being as *large* as possible consistent with the powers of supervision of one leader. Under these circumstances (the Company Commanders have other important duties besides controlling fire and thus putting the largest possible fire unit, the company, out of court) we are left with *the half company as the most desirable unit for close order fire*.

I submit then that there is no place or necessity for the section.

My proposal, therefore, is, that there be eight non-commissioned officers (each commanding a squad), with equal rank, powers and duties, and responsible direct to the half company leader. The advantage of this is a simplification in the organisation, drill and control of a company at all times by the abolition of the intermediate rank of section commander. In close order drill or fire these squad leaders would never be required, as all executive words of command would be given by the half company leaders. They could therefore be in the ranks, and the services of their rifles would not be lost as those of the section leaders are at present; while the compactness and appearance of the company would be much improved by the absence of the present straggly supernumerary rank. In extended order, the moment the extension is complete, each of the squads becomes a separate entity under its own leader; guided only by previous instructions, the rules of fire control and requirements of fire discipline as laid down, its own collective intelligence, the duty of conforming to the rest of the company, and such few orders as the half company and company commanders may succeed in conveying to it during the action. On all other occasions there would be nobody outside the ranks but the officers; or, in the native army, where there are only two officers per company, those two and the color havildar.

A CORPS OF VOLUNTEER OFFICERS : A SUGGESTION.

By MAJOR W. H. MERCER, ADJUTANT, SOUTH INDIAN RAILWAY
VOLUNTEER RIFLES.

A great deal has been said and written at various times, especially of late, about the numbers of Englishmen in this country who do not join the Volunteers, or take any steps to acquire any military training, notwithstanding the very able and powerful way it has been expressed how very important from a national point of view it is that Europeans in this country should undergo some such training. Now a great number of those who at present stand aloof from joining the rank and file might, I think, be induced to take up commissions in the Volunteer Force. But here again, I think, they might be given more encouragement than they get at present. If we could get more of the "officer" class to join, I think others would follow their example and join the rank and file. Now, anyone who has had any intimate dealing with the Volunteer Force in this country, will admit that amongst the officers of that Force there are some very able men,—I mean in a military sense. Men, who have taken up volunteering heart and soul, have expended a great amount of their time and energies in military matters and also really have arrived at that stage when in the event of their services being required could be found a real help to the military authorities. And I think there is no question that we cannot have too many of this class. But in the Volunteer Regulations, as they now stand, a promising man may, through no faults of his own, at any stage of his volunteer career, find himself thrown out of the Force in which he was just beginning to take such an interest. To make my meaning clearer we will suppose a case,—a case that might happen to any Volunteer officer. We will suppose a young man on first coming out to this country joins as a 2nd-Lieutenant of a corps which we will call A. We will suppose he serves in this corps for about seven years and has reached the rank of junior Captain. Let us suppose that he has become very keen. Takes up soldiering as a "hobby," makes a study of it, and is fast becoming a really useful member of the National Defences. We will now suppose that business calls, or Government duty takes, him to another part of India, not *out* of India, but simply to some other station or district. On arrival at his destination he writes to the Officer Commanding the nearest Corps, which we will call B., and asks to be enrolled. The Commanding Officer who, perhaps, has some of his own officers that he wants to promote, or several candidates waiting for enrolment, writes back and says that he regrets there is no vacancy, but that if he likes he can attend for drills, etc. The Commanding Officer is acting quite within his right and no one can blame him. After a short interval the Officer Commanding 'A' Corps writes to our

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friend and says that as there appears to be no likelihood of his returning to that part of the country, his name is being placed on the supernumerary list. Now this is where I think the hardship comes in. Here is a man who is just becoming a keen, useful soldier and could be a grand example to others, through no fault of his or of any body's, placed on the supernumerary list. At the expiry of two years his name is then transferred to the unattached list, and at the end of a further three years, if still not taken on by some corps, he is compelled to resign his commission. Neither of the Commanding Officers can be blamed for the action they have taken. Perhaps they have both got good keen men whom they want to push on. Thus, through no one's fault, the State loses a good, sound man, and just the sort we want in this country.

To remedy this evil, I bring forward the following suggestion : that is, that, in addition to the existing volunteer corps, etc., a "corps of volunteer officers" be formed (of course perhaps some better title might be chosen). This "corps," or "roll," to contain only officers. Members to be unlimited. I don't think we can have too many gentlemen trained as officers. Promotion in each rank to be according to number of years served ; the time to be fixed by ascertaining approximately the average rate now existing in the different branches of the Volunteer Force. The corps to be subdivided for officers for the different branches, *i.e.*, artillery, mounted rifles, light horse, rifles, etc., etc. The number of drills, etc., now required for being an efficient or extra-efficient to be the same as for officers serving in corps and as now laid down in the Regulations. An officer on the rolls of the "corps of volunteer officers" must attend drills with any corps near which he may be stationed, or in default of there being a volunteer corps of his branch, with a regiment of regulars, and make himself efficient every year the corps with which he puts in his drills to draw the capitation grant for that year. Any officer failing to make himself an efficient for two years in succession to be required to resign his commission altogether. I think it would be highly necessary to introduce some such condition in a corps of this description. In ordinary corps the Commanding Officer and his brother officers would bring pressure to bear on any one failing to take the proper interest in his work, but in a corps like this there would, of course, be no similar influence to keep a man up to his duties. In the event of an officer obtaining, in the first instance, a commission in some one of the existing corps, and then through being transferred, finding that he is unable to get enrolled in any other corps, he should be allowed on sending in an application to have his name entered in the "corps of volunteer officers—" his name being entered according to the rank he then holds, and subsequent promotion being obtained in accordance with rules laid down for the "corps of volunteer officers."

A gentleman, desirous of obtaining a commission in His Majesty's Volunteer Forces in India, might be allowed to take up a commission in one or other of the existing corps as is now done, or if there is no vacancy in a corps near where he is quartered, or if he considers that his career out here is likely to be one of constant transfers, which would render it not worth his while joining any particular corps, he might,

under such circumstances, elect to join the "corps of volunteer officers," and if he so chooses, complete the whole of his volunteer service with that corps. I think in the case of those desirous of obtaining a commission, in the first instance, in the "corps of volunteer officers," it would be as well to have some rule that they must be recommended by the General Officer Commanding of a district or by some one in authority to ensure the right stamp of men being enrolled. As regards uniform, I would have some simple but slightly distinctive dress for those officers who originally join and put in all their service with the "corps of volunteer officers," as for those who get transferred to the corps from some other regiment, I would, if they so choose, permit them to wear the uniform that is in their possession. I would put no bar in the way of officers desirous of being transferred from the "corps of volunteer officers" to any corps that they wish to join and that is prepared to take them. I omitted to mention that an applicant for a commission in the "corps of volunteer officers" should state for which branch he elects, *i.e.*, artillery or light horse etc.

The obvious reply appears to be : let such of these gentlemen who are eligible join the Army Reserve of Officers.

Secy., U. S. I of India.

THE EKKA AS A MEANS OF MILITARY TRANSPORT.

BY MR. P. B. BRAMLEY, POLICE FORCE.

In view of the fact that ekkas will probably be used a good deal in future for purposes of military transport, may I suggest a very simple and efficacious means by which the military authorities could secure the existence of an ample and reliable supply, without having, in the first instance, to indent upon the ordinary resources of the country.

It should be made a rule in all military cantonments in India that all ekka-owners residing therein should maintain ekkas and harness of a certain description and ponies of a certain class and quality on the express understanding that they are to be produced for military purposes when required.

To begin with, efforts might, in the first instance, be made to secure an appropriate *adaptation*, and a prize might, with advantage, be offered by Government for the best design of an ordinary country ekka adopted to, or converted for, purposes of military transport. The condition of the competition should be something on the following lines :—

- (1) The lines and structure of the ordinary ekka of the country are to be adhered to and maintained as far as possible.
- (2) The improvements or additions should consist solely of such extras as the construction of rifle clips, luggage or baggage straps, strengthening of the axles, cross-bars and other parts, *without perceptibly increasing the weight, or interfering with the balance* of the vehicle.
- (3) The improvement of the harness, with a view to its being used for such purposes in country where wheeled transport is no longer possible and where the ponies alone would have to be used for the purposes.
- (4) All improvements or additions to be absolutely simple in construction, so that the iron and wood work can be repaired, when necessary, by ordinary village *mistris* or *lohars*, and the leather work by *mochis* or the ordinary leather workers of the country. Metal buckles and rings, etc., should therefore be replaced as far as is possible by leather laces or thongs, etc., etc.

I dare say there are other conditions also which will suggest themselves to military experts and might be added, but the object in view, *vis.*—"The best adaptation of the existing stock rather than the

production of a brand new article should not be lost sight of for the simple reason that the ordinary ekka-owners probably would not be able to afford the cost in the latter case.

In respect to ponies, a small sturdy stamp of animal between 12—2 and 13—2 might be best employed, but this is a question which must depend entirely on local condition. In the Punjab, for instance, the height would probably be greater. In any case the part of the *local* stock should be secured as far as is possible.

The licensed drivers should be Mahomedans or of the syce castes, born and bred, if possible, in cantonments, whose families are accustomed to service with Europeans and soldiers and who would no doubt freely accept service if encouraged.

In order to compensate for initial expenses, risk of impressment for military service, stricter periodical examinations, and the maintenance of vehicles and animals of a superior quality, the animal licensing fees of such ekkas as also of the drivers thereof should be reduced and the rate of fares increased. Prices might also be given annually for the best ponies and ekkas maintained throughout the year, etc., etc.

If, by experiment, the system is found to answer in cantonments, it might in time be extended to the larger municipalities.

The ekka is a vehicle with great possibilities from a military point of view. Indian military history has established its utility on more than one authentic instance, and besides being an effective means of transport for supplies and men, it could very easily, with a very little trouble and ingenuity, be converted into a very efficient machine gun carriage.

Personally I can, along with many other sportsmen, vouch for its efficiency for sporting and police purposes. I have for years used a sporting ekka myself, and have also employed them with much effect in making raids on the hilly "Daens" and cattle-lifters in districts like Mainpuri, Etawah and Etah, where the distances to be covered are, as a rule, great and the roads for the most part *kutchas*. In 1894-95, when in Meerut the late General G. E. L. Sanford, C.B., who commanded the division at the time, Mr. Dyer, C.S., the Magistrate of the District, and I discussed the subject of the possible adaptation of a country ekka for military work, and a prize was offered at the Nauchandi Lhow for the best design, with the result that some very ingenious adaptations were exhibited. The matter seems, however, to have gone no further. In fact, when the South African War broke out, Mr. Dyer wrote to the papers suggesting the employment of ekkas; his idea was ridiculed by wags who probably were not so well qualified to offer an opinion on the subject as he was.

I therefore make this suggestion for what it is worth. The present time seems to be an appropriate one for drawing attention to the subject, which appears to be well worth the consideration of the military authorities. The question should be gone into thoroughly. In this hasty note I have only been able to give you the barest out-

friend and says that as there appears to be no likelihood of his returning to that part of the country, his name is being placed on the supernumerary list. Now this is where I think the hardship comes in. Here is a man who is just becoming a keen, useful soldier and could be a grand example to others, through no fault of his or of any body's, placed on the supernumerary list. At the expiry of two years his name is then transferred to the unattached list, and at the end of a further three years, if still not taken on by some corps, he is compelled to resign his commission. Neither of the Commanding Officers can be blamed for the action they have taken. Perhaps they have both got good keen men whom they want to push on. Thus, through no one's fault, the State loses a good, sound man, and just the sort we want in this country.

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A gentleman, desirous of obtaining a commission in His Majesty's Volunteer Forces in India might be allowed to take up a commission in one or other of the existing corps as is now done, or if there is no vacancy in a corps near where he is quartered, or if he considers that his career out here is likely to be one of constant transfers which would render it not worth his while joining any particular corps, he might,

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Secy., U. S. I of India.

lines of a possible scheme. A census might be taken, to begin with, of all ekkas licensed to ply in Indian cantonments from which an estimate could be framed of the supply available. The existing stock might then be inspected by competent officers, and a scheme submitted for the formation of an ekka cadre on the lines suggested. If officers of experience and tact were chosen to carry the work out, I cannot see any reason why the object in view should not be attained in a manner which in the end would be advantageous both to Government and the ekka-owners. If, therefore, you consider the subject worth discussing, I would be much obliged if this very imperfect note were given a place in the next issue of the Journal.

THE SWISS ARMY MANŒUVRES OF 1903.

BY LT.-COL. THE HON'BLE E. NOEL, LATE RIFLE BRIGADE.

When entering Switzerland from any of the four great military states by which the territory of the Confederation is surrounded, the traveller is at once struck by the absence of militarism; barracks are few; there are no soldiers about in uniform, the clanking of swords awakes no echo in the streets.

Although not a military nation like their neighbours, the Swiss are, nevertheless, a people fully determined to defend their neutrality and, still more, their independence against all comers.

For these ends they maintain, not a standing army, but a national militia, raised by universal service. In Switzerland it is fully understood to be the duty of every citizen to take his share in the defence of the fatherland; to do so is looked upon as an honour as well as a duty, and the unlucky are they who from any physical weakness are unable to take their place in the ranks. All who for any reason do not serve have to pay a personal tax of 6 francs a year, and also income-tax according to their wealth.

At the age of 20 every Swiss citizen has to go through a recruit's course, which varies in length according to the arm, but is never less than six weeks nor more than three months. He then for 12 years is borne on the strength of the active army, called the '*élite*,' and has to do a 'repetition course' of 18 days—in the artillery 20 days—every two years; after which he joins the *landwehr* for another period of 12 years, during which he is called out only every fourth year for a still shorter training; lastly, he joins the '*landsturm*,' which includes all between the ages of 17 and 50 exclusive of the *élite* and *landwehr*.

Cavalry serve for 10 instead of 12 years in the *élite* during which they are called out every year, but for only 12 days. The cavalry recruit has to bring his horse, or pay the value of one to government, who reimburse him yearly one-tenth of half its value: he enjoys the use of his horse, and at the end of his ten years' service in the *élite* it becomes his property.

The 'recruit' and 'repetition' courses include a course of musketry, and in those years in which he is not called out, the soldier has to fire at least 40 rounds, but owing to the many shooting clubs in the country this does not represent all the practice most men get.

There is no officer class in the Swiss army: every one has to serve as a private and work his way up by merit. To become a non-commissioned officer, a man has to do an additional course of

from four to six weeks and go through as a non-commissioned officer another recruit course. For the rank of lieutenant there is required an 'officer's preparatory course' of six weeks—in the artillery (two courses) of 14 weeks—a special musketry course of four weeks, and attendance as an officer at a recruit course. There is, furthermore, a special officer's course in the rank of first lieutenant, and before promotion to captain a first lieutenant must go through a recruit course in command of a company. There are also further courses for captains and majors to qualify for promotion.

The only strictly professional portion of the army are the officers of the general staff, some staff clerks, and about 200 instructors.

The Swiss are very modest in the matter of rank. Companies, squadrons and batteries are commanded by captains; battalions, cavalry regiments and artillery groups by majors; regiments of infantry and artillery (four to six batteries) and brigades of cavalry by lieutenant-colonels, whilst brigades, divisions and army corps are alike commanded by colonels, which is the highest rank held in peace-time.

The Swiss soldier keeps his uniform, arms and accoutrements, and in the cavalry, his horse and saddlery—everything in fact except ammunition—in his own possession, an arrangement which greatly simplifies and accelerates mobilization.

The battalions and squadrons are numbered consecutively throughout, the 1st, 2nd and 3rd forming the 1st regiment, the 4th, 5th and 6th the 2nd regiment, and so on.* There are two regiments in a brigade, two brigades in a division, and two divisions in an army corps.

The infantry are armed with a 7.5 millimetre rifle, loaded by clips of six rounds; the magazine holds two of these, besides the round in the chamber. The barrel is wholly incased in wood, whilst the bayonet is very like ours. The knapsack is carried by means of two straps over the shoulders, and can be taken off and put on again very quickly, so that during a halt on the march, or a "stand easy" at manœuvre, the soldier can relieve himself of his load. The greatest is rolled over the knapsack. A certain number of entrenching tools are carried by the men, but they look too small to be really serviceable. Heavier tools are carried in carts. The total weight carried by the foot soldier is about 60 lbs.

Knapsacks are carried by the company officers. The men have no gaiters, but the officers wear them of various patterns.

Each division has one battalion of 'Carabineers' (Rifles) who are specially selected as being the best shots. Line battalions are styled 'Fusiliers.'

The Cavalry are all Dragons, and are armed with sword and carbine, both of which are attached to the saddle, the former in a steel scabbard on the near, the latter in a leathern bucket on the off side.

* The 8th Battalion is now in the 4th regiment in place of the 12th Battalion recently transferred to the St. Maurice detachment.

The carbine is of the same bore as the infantry rifle; 60 rounds of ammunition are carried in a bandolier. The weight carried by the horses, allowing only 10 stone for the rider, amounts to nearly 17 stone.

There is one cavalry brigade of two regiments in each army corps. For divisional cavalry, there is a company of "Guides" to each division, in all respects similar to a squadron of dragoons. There are also four companies of less strength who, as well as a detachment of cyclists, are attached to the staffs for escort and orderly duties.

The field batteries have six guns and six wagons drawn by six horses each. The present guns are eight centimetre, but a new gun has been decided upon with which the whole of the field artillery is about to be rearmed. The gunners do not carry carbines: the drivers are armed with swords. The artillery as well as the engineer and transport horses are, like the men, only embodied for training, and except on these occasions the guns remain in the arsenals.

There are four batteries attached to each division, and six are attached to the corps artillery.

There is no horse artillery. A mounted machine-gun company is attached to each cavalry brigade; these guns and their ammunition are carried on pack horses and can thus accompany the cavalry anywhere. There are no machine guns attached to infantry, and no "pompoms."

One would expect Switzerland to be strong in mountain artillery but such is not the case, there being only four batteries in all: these and 140 heavy guns of various calibre, available for the field army, do not belong to any particular army corps, and neither of these branches of the artillery arm figured in the late manœuvres.

To each division a half battalion of engineers is allotted: other engineer units form part of the corps troops.

There is a supply column to each army corps, consisting of 96 wagons and 372 draft horses.

There are no gaudy uniforms in the Swiss army; trousers or breeches of a bluish grey color are worn by men of all arms; tunics are dark blue for infantry, artillery and engineers, dark green for cavalry and carabineers, and at manœuvre all ranks and all arms wear a blouse not unlike our serge jacket.

Every battalion has a band of brass instruments and small drums, and one 'colour' carried by a non-commissioned officer. This is the national flag—a white cross on a red field—and has the canton inscribed on one side of the cross and the battalion number on the other. Cavalry regiments also have a small band and a 'guidon.'

Drill is simple: a battalion is divided into four companies, each company into two "pelotons" and four sections; "fours" are formed by wheeling. There are only two positions for the rifle, the 'sling'—over the right shoulder with muzzle upright—and the 'order'; the

former with the arm extended is the position of 'attention.' A battalion is divided into three troops, and forms column of route on a front of three.

The Swiss army is divided into four *corps d'armée*, and every year the *élite* of two corps are called up for training, and in the case of one corps this is combined with field manœuvres.

In 1903 it was the turn of the 1st corps which, belonging to Western Switzerland, consists principally of French-speaking troops.

The day of mobilization was the 31st August, and the place for the 1st Division was Morges, well known for the pretty view it has of the Mont Blanc through an opening in the mountains of Savoy. The arsenal of the Canton Vaud is at Morges, and on a green meadow beside the arsenal on the north shore of Lake Geneva the men of the ten battalions of this canton assembled. The hour of 'fall in' was 7-30 A.M. for the 1st regiment, 9-30 for the 3rd, 11-30 for the 2nd, and 10-30 for the carabineers. The men had to find their way to Morges and all arrived fully clothed, armed and accoutred; many came by the ordinary trains, but special trains were also run to meet the traffic. Here were taken over the blankets, tools, cooking pots, wagons and horses, each battalion receiving five covered carts, three 'requisition' carts, and one small arms ammunition cart, each drawn by two horses.

Some battalions marched off in the forenoon, others had their dinners at Morges and started away in the afternoon for their feed stations.

The 4th regiment, composed of troops of cantons Valais and Geneva, mobilized on their own ground and were conveyed to their field stations by railway.

Morges was also the mobilization station for the 'Larret' (hospital) of the 1st Division, consisting of three '*ambulances*' (field hospitals) in charge of the medical officers whose light blue tunics made them conspicuous amidst the more sombre clad soldiery.

The mobilization of the 2nd Division, which has six places of assembly, was carried out this year at Verdon, where all the material was sent from the different arsenals.

The artillery came out on the 28th August, but the cavalry did not mobilize till the 5th September and were conveyed by rail to Avenches. A squadron of cavalry has two carts, a forge and a cooking range which cooks on the move, whilst a battery possesses, in addition to the above, one equipment and one store wagon.

Mobilization could be expedited to an even greater extent if more centres were established, thus lessening the work of issuing material at any one place and the distance to be travelled by the men. Nevertheless, probably no army in Europe could mobilize as rapidly as the Swiss.

On the evening of the 31st August there were in the field two divisions of infantry complete with engineers, commissariat, transport

and hospitals, and formed of men who the day before had been about their ordinary business; indeed many of them had probably tended their cattle that very morning before donning their uniforms.

The field states for the 1st September showed a total of 23,608 men of all ranks under arms and 2,812 horses (621 riding and 2,191 draft). The corps, however, were not at full strength as this year only 10 instead of 12 classes were called up, and leave is reported to have been freely given.

The first week was devoted to battalion or regimental exercises called the 'preparatory course,' and during this time each corps remained stationary in its cantonments. The troops were housed mostly in barns, horses stabled in the towns or villages, and the guns, wagons and transport carts parked in fields outside.

During the later period of the manœuvres, cantonments were changed nearly every day, and the billeting was genuinely carried out. On leaving quarters in the morning it was not known where the corps would pass the night, nor was there a tent to be seen throughout the duration of manœuvres.

Night outposts were practised on the Saturday of the first week and kept up all night.

During the preparatory course the hours of work were from 7 A.M. to 1 P.M. and 3 P.M. to 5 P.M.

The first two days of the second week were given up to 'Brigade v. Brigade' schemes on the ground round Divisional Head-Quarters. The 3rd Dragoons and 3rd Guides of the 2nd Army Corps, who were out for their annual training in the neighbourhood, were utilized on these days, a squadron of each being attached to the different brigades.

After an interval of one day began the

GRAND MANŒUVRES.

The first phase—Division v. Division—was based on the following idea :—

A *White Force* was supposed to have issued from the upper valley of the Rhone and to be moving along the north shore of Lake Geneva in a westerly direction. Having occupied Lausanne on the 9th September it detached on the afternoon of that day a division—I Division, Colonel P. Isler—on Echallens to drive back an enemy's column which had occupied Yverdon :

A *Red Force* having crossed the Jura advances east to meet the white force and detaches a division—II Division, Colonel E. Secreten—to cover its left by Yverdon at the head of Lake Neuchatel.

The effective force on the 9th September was—

I Division	...	...	11,188 men and 1,066 horses.
II "	...	...	11,168 " " 1,065 "
Corps Troops	...	...	3,248 " " 1,313 "
Total	...	...	<u>25,604 men and 3,444 horses.</u>

On the evening of the 9th the I Division, *white*, had established its outposts on the line Bottens-Assens-Bournens: the II Division, *red*, on the line Essert-Peti-Epautheires-Donneloye. The outposts were thus about 14 kilometres apart. Midway between them, but rather nearer the II Division, lay the village of Vuarrens, which was the objective of both cavalries next morning; these were not to cross their outpost lines before 6-30 A. M., the infantry and artillery not before 8 A. M.

The Corps troops were allotted as follows:—

To I Division *white* 1st Dragoons, Pontoon Train and Telegraph Company.

" II Division *red* 2nd Dragoon, machine gun company, balloon section and 9th Field Artillery (6 batteries).

1ST DAY, 10TH SEPTEMBER. CONFLICT OF TWO FORCES BOTH IN MOVEMENT.

Colonel Isler *white*, formed two columns:

Right, 1st brigade (6 battalions) and 2 batteries Field Artillery.

Left, 2nd brigade, Carabineer battalion, and 2 batteries Field Artillery,

with orders to move, one on each side of the main road Lausanne-Yverdon.

Colonel Secretan, *red*, also formed two columns with Echallens as their objective:

Right, 1 regiment (three battalions), 2 batteries Field Artillery and the Engineer units to move along the high road.

Left, remainder of the force to move by Ursin-Pailly-LeChauchy.

The cavalry of both sides started at 6-30 and came into contact south of Vuarrens; the umpires decided in favour of the Reds, and the Whites retired behind Echallens, followed by the Reds who established their mitrailleuses on a hill north of the town, by the fire of which and of dismounted dragoons they delayed the advance of the white infantry long enough to enable their own force to take position on both sides of Vuarrens. By 9-30 the 9th Field Artillery (six batteries) had opened fire from the high ground east of that village.

The Whites had now deployed, and advanced to the attack across the open plain between Echallens and Vuarrens. On their coming to close quarters the 'cease fire' sounded.

At this juncture the Director of the Manœuvres, the Corps Commander Colonel Techtermann, had reports made to the Divisional Commanders to the effect that the main red army had occupied the heights east of the Venoge (a small river flowing into Lake Geneva east of Morges), that the main white army was halted on the line Lausanne-LeMont-Morrens and that the detached division was to cover its right flank.

This necessitated a retreat of the I Division (*white*) in an oblique direction on Poliez le Grand. The II (*red*) followed, pivoting on its left and forming one regiment into a reserve north-west of Echallens,

whilst their powerful artillery took up a final position near Villars le Terroir. The action was all over before 2 P.M.

That evening the outposts were on the following lines :—

I Division (*white*), Dommartin-Poliez le Grand-Bottens.

II " (*red*), Bretigny-Villars le Terroir-Fey

not more than 3 kilometres apart.

2ND DAY, 11TH SEPTEMBER. RED FORCE ATTACKS WHITE IN POSITION.

The ground east of the Lausanne-Yverdon high road rises gradually to the hilly wooded region known as the Jorat, and behind the village of Poliez Pittet forms a steep escarpment; this line, about 4 kilometres in length, was chosen by Colonel Isler (*white*) for his main position.

Colonel Secretan (*red*) formed two columns of attack.

Right, 3rd brigade and 9th F. A. (six batteries) to start from Villars le Terroir and attack the enemy in front;

Left, 4th brigade and 2nd F.A. (four batteries) to start from Fey and attack enemy's right.

The attack began at 7 A.M. The right column established one group of guns (three batteries) on the hill east of Villars le Terroir and pushed the other forward to north of Poliez le Grand which had been abandoned by the enemy and occupied by the red infantry, who then continued their advance until they came into close contact with the white infantry above Poliez Petit.

The left attack, half of whose artillery was somehow deflected to the right, was declared to have failed, and thus it devolved upon the right column to face the whole white force single-handed. At this moment (10 A.M.) the 'cease fire, sounded. About 11 o'clock heavy rain came on and the troops were sent to their cantonments.

This day the 2nd Dragoons emulated the exploits of the American civil war by making a raid round the enemy's rear, but the early termination of the operations prevented their reaping the fruits of their enterprise.

To enable the I Division to be attackers the following new "idea" was promulgated for the next day:

A *Red Force*, retreating, has halted on the right bank of the Mentue (a small stream flowing north into Lake Neuchatel), its left wing—I Division—has taken position on the heights between the Mentue and the Merine (a stream flowing into the Broye at Moudon) with outposts on the line Moulin des Engrins (east of Fey)—Sottens-Moudon.

A *White Force* pursuing has reached the heights of Pomy, Vuarrens, Bottens; its right wing—I Division—has its outposts on the line Peney le Jorat—Dommartin-Sugnens and has orders to push on vigorously next morning on Thierrens.

The corps artillery (6 batteries), the machine gun company and the balloon section were transferred to the I Division (*white*).

3RD DAY, 12TH SEPTEMBER. WHITE FORCE ATTACKS RED IN POSITION.

The scene of this day's combat was an undulating plain surrounded by wooded heights with the village of Chapelle in the middle.

lines of a possible scheme. A census might be taken, to begin with, of all ekkas licensed to ply in Indian cantonments from which an estimate could be framed of the supply available. The existing stock might then be inspected by competent officers, and a scheme submitted for the formation of an ekka cadre on the lines suggested. If officers of experience and tact were chosen to carry the work out, I cannot see any reason why the object in view should not be attained in a manner which in the end would be advantageous both to Government and the ekka-owners. If, therefore, you consider the subject worth discussing, I would be much obliged if this very imperfect note were given a place in the next issue of the Journal.

THE SWISS ARMY MANŒUVRES OF 1903.

BY LT.-COL. THE HON'BLE E. NOEL, LATE RIFLE BRIGADE.

When entering Switzerland from any of the four great military states by which the territory of the Confederation is surrounded, the traveller is at once struck by the absence of militarism; barracks are few; there are no soldiers about in uniform, the clanking of swords awakes no echo in the streets.

Although not a military nation like their neighbours, the Swiss are, nevertheless, a people fully determined to defend their neutrality and, still more, their independence against all comers.

For these ends they maintain, not a standing army, but a national militia, raised by universal service. In Switzerland it is fully understood to be the duty of every citizen to take his share in the defence of the fatherland; to do so is looked upon as an honour as well as a duty, and the unlucky are they who from any physical weakness are unable to take their place in the ranks. All who for any reason do not serve have to pay a personal tax of 6 francs a year, and also income-tax according to their wealth.

At the age of 20 every Swiss citizen has to go through a recruit's course, which varies in length according to the arm, but is never less than six weeks nor more than three months. He then for 12 years is borne on the strength of the active army, called the '*élite*,' and has to do a 'repetition course' of 18 days—in the artillery 20 days—every two years; after which he joins the *landwehr* for another period of 12 years, during which he is called out only every fourth year for a still shorter training; lastly, he joins the '*landsturm*,' which includes all between the ages of 17 and 50 exclusive of the *élite* and *landwehr*.

Cavalry serve for 10 instead of 12 years in the *élite* during which they are called out every year, but for only 12 days. The cavalry recruit has to bring his horse, or pay the value of one to government, who reimburse him yearly one-tenth of half its value: he enjoys the use of his horse, and at the end of his ten years' service in the *élite* it becomes his property.

The 'recruit' and 'repetition' courses include a course of musketry, and in those years in which he is not called out, the soldier has to fire at least 40 rounds, but owing to the many shooting clubs in the country this does not represent all the practice most men get.

There is no officer class in the Swiss army: every one has to serve as a private and work his way up by merit. To become a non-commissioned officer, a man has to do an additional course of

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from four to six weeks and go through as a non-commissioned officer another recruit course. For the rank of lieutenant there is required an 'officer's preparatory course' of six weeks—in the artillery (two courses) of 14 weeks—a special musketry course of four weeks, and attendance as an officer at a recruit course. There is, furthermore, a special officer's course in the rank of first lieutenant, and before promotion to captain a first lieutenant must go through a recruit course in command of a company. There are also further courses for captains and majors to qualify for promotion.

The only strictly professional portion of the army are the officers of the general staff, some staff clerks, and about 200 instructors.

The Swiss are very modest in the matter of rank. Companies, squadrons and batteries are commanded by captains; battalions, cavalry regiments and artillery groups by majors; regiments of infantry and artillery (four to six batteries) and brigades of cavalry by lieutenant-colonels, whilst brigades, divisions and army corps are alike commanded by colonels, which is the highest rank held in peace-time.

The Swiss soldier keeps his uniform, arms and accoutrements, and in the cavalry, his horse and saddlery—everything in fact except ammunition—in his own possession, an arrangement which greatly simplifies and accelerates mobilization.

The battalions and squadrons are numbered consecutively throughout, the 1st, 2nd and 3rd forming the 1st regiment, the 4th, 5th and 6th the 2nd regiment, and so on.* There are two regiments in a brigade, two brigades in a division, and two divisions in an army corps.

The infantry are armed with a 7.5 millimetre rifle, loaded by clips of six rounds; the magazine holds two of these, besides the round in the chamber. The barrel is wholly incased in wood, whilst the bayonet is very like ours. The knapsack is carried by means of two straps over the shoulders, and can be taken off and put on again very quickly, so that during a halt on the march, or a "stand easy" at manœuvre, the soldier can relieve himself of his load. The greatcoat is rolled over the knapsack. A certain number of entrenching tools are carried by the men, but they look too small to be really serviceable. Heavier tools are carried in carts. The total weight carried by the foot soldier is about 60 lbs.

Knapsacks are carried by the company officers. The men have no gaiters, but the officers wear them of various patterns.

Each division has one battalion of 'Carabineers' (Rifles) who are specially selected as being the best shots. Line battalions are styled 'Fusiliers.'

The Cavalry are all Dragoons, and are armed with sword and carbine, both of which are attached to the saddle, the former in a steel scabbard on the near, the latter in a leathern bucket on the off side.

* The 88th Battalion is now in the 4th regiment in place of the 12th Battalion recently transferred to the St. Maurice defences.

The carbine is of the same bore as the infantry rifle; 60 rounds of ammunition are carried in a bandolier. The weight carried by the horses, allowing only 10 stone for the rider, amounts to nearly 17 stone.

There is one cavalry brigade of two regiments in each army corps. For divisional cavalry, there is a company of "Guides" to each division, in all respects similar to a squadron of dragoons. There are also four companies of less strength who, as well as a detachment of cyclists, are attached to the staffs for escort and orderly duties.

The field batteries have six guns and six wagons drawn by six horses each. The present guns are eight centimetre, but a new gun has been decided upon with which the whole of the field artillery is about to be rearmed. The gunners do not carry carbines: the drivers are armed with swords. The artillery as well as the engineer and transport horses are, like the men, only embodied for training, and except on these occasions the guns remain in the arsenals.

There are four batteries attached to each division, and six are attached to the corps artillery.

There is no horse artillery. A mounted machine-gun company is attached to each cavalry brigade; these guns and their ammunition are carried on pack horses and can thus accompany the cavalry anywhere. There are no machine guns attached to infantry, and no "pompoms."

One would expect Switzerland to be strong in mountain artillery but such is not the case, there being only four batteries in all: these and 140 heavy guns of various calibre, available for the field army, do not belong to any particular army corps, and neither of these branches of the artillery arm figured in the late manœuvres.

To each division a half battalion of engineers is allotted: other engineer units form part of the corps troops.

There is a supply column to each army corps, consisting of 96 wagons and 372 draft horses.

There are no gaudy uniforms in the Swiss army; trousers or breeches of a bluish grey color are worn by men of all arms; tunics are dark blue for infantry, artillery and engineers, dark green for cavalry and carabineers, and at manœuvre all ranks and all arms wear a blouse not unlike our serge jacket.

Every battalion has a band of brass instruments and small drums, and one 'colour' carried by a non-commissioned officer. This is the national flag—a white cross on a red field—and has the canton inscribed on one side of the cross and the battalion number on the other. Cavalry regiments also have a small band and a 'guidon.'

Drill is simple: a battalion is divided into four companies, each company into two "pelotons" and four sections; "fours" are formed by wheeling. There are only two positions for the rifle, the 'sling'—over the right shoulder with muzzle upright—and the 'order'; the

former with the arm extended is the position of 'attention.' A squadron is divided into three troops, and forms column of route on a front of three.

The Swiss army is divided into four *corps d'armée*, and every year the *élite* of two corps are called up for training, and in the case of one corps this is combined with field manœuvres.

In 1903 it was the turn of the 1st corps which, belonging to Western Switzerland, consists principally of French-speaking troops.

The day of mobilization was the 31st August, and the place for the 1st Division was Morges, well known for the pretty view it has of the Mont Blanc through an opening in the mountains of Savoy. The arsenal of the Canton Vaud is at Morges, and on a green meadow beside the arsenal on the north shore of Lake Geneva the men of the ten battalions of this canton assembled. The hour of 'fall in' was 7-30 A.M. for the 1st regiment, 9-30 for the 3rd, 11-30 for the 2nd, and 10-30 for the carabineers. The men had to find their way to Morges and all arrived fully clothed, armed and accoutred; many came by the ordinary trains, but special trains were also run to meet the traffic. Here were taken over the blankets, tools, cooking-pots, wagons and horses, each battalion receiving five covered carts, three 'requisition' carts, and one small arms ammunition cart, each drawn by two horses.

Some battalions marched off in the forenoon, others had their dinners at Morges and started away in the afternoon for their field stations.

The 4th regiment, composed of troops of cantons Valais and Geneva, mobilized on their own ground and were conveyed to their field stations by railway.

Morges was also the mobilization station for the 'Lazaret' (hospital) of the 1st Division consisting of three '*Ambulances*' (field hospitals) in charge of the medical officers whose light blue tunics made them conspicuous amidst the more sombre clad soldiery.

The mobilization of the 2nd Division, which has six places of assembly, was carried out this year at Verdon, where all the matériel was sent from the different arsenals.

The artillery came out on the 28th August, but the cavalry did not mobilize till the 5th September and were conveyed by rail to Avenches. A squadron of cavalry has two carts, a forge and a cooking range which cooks on the move, whilst a battery possesses, in addition to the above, one equipment and one store wagon.

Mobilization could be expedited to an even greater extent if more centres were established, thus lessening the work of issuing matériel at any one place and the distance to be travelled by the men. Nevertheless, probably no army in Europe could mobilize as rapidly as the Swiss.

On the evening of the 31st August there were in the field two divisions of infantry complete with engineers, commissariat, transport

and hospitals, and formed of men who the day before had been about their ordinary business; indeed many of them had probably tended their cattle that very morning before donning their uniforms.

The field states for the 1st September showed a total of 23,608 men of all ranks under arms and 2,812 horses (621 riding and 2,191 draft). The corps, however, were not at full strength as this year only 10 instead of 12 classes were called up, and leave is reported to have been freely given.

The first week was devoted to battalion or regimental exercises called the 'preparatory course,' and during this time each corps remained stationary in its cantonments. The troops were housed mostly in barns, horses stabled in the towns or villages, and the guns, wagons and transport carts parked in fields outside.

During the later period of the manœuvres, cantonments were changed nearly every day, and the billeting was genuinely carried out. On leaving quarters in the morning it was not known where the corps would pass the night, nor was there a tent to be seen throughout the duration of manœuvres.

Night outposts were practised on the Saturday of the first week and kept up all night.

During the preparatory course the hours of work were from 7 A.M. to 1 P.M. and 3 P.M. to 5 P.M.

The first two days of the second week were given up to 'Brigade v. Brigade' schemes on the ground round Divisional Head-Quarters. The 3rd Dragoons and 3rd Guides of the 2nd Army Corps, who were out for their annual training in the neighbourhood, were utilized on these days, a squadron of each being attached to the different brigades.

After an interval of one day began the

GRAND MANŒUVRES.

The first phase—Division v. Division—was based on the following idea :—

A *White Force* was supposed to have issued from the upper valley of the Rhone and to be moving along the north shore of Lake Geneva in a westerly direction. Having occupied Lausanne on the 9th September it detached on the afternoon of that day a division—I Division, Colonel P. Isler—on Echallens to drive back an enemy's column which had occupied Yverdon :

A *Red Force* having crossed the Jura advances east to meet the white force and detaches a division—II Division, Colonel E. Secretan—to cover its left by Yverdon at the head of Lake Neuchatel.

The effective force on the 9th September was—

I Division	...	...	11,188 men and 1,066 horses.
II "	...	...	11,168 " " 1,065 "
Corps Troops	...	...	3,248 " " 1,313 "
Total	...	...	25,604 men and 3,444 horses.

On the evening of the 9th the I Division, *white*, had established its outposts on the line Bottens-Assens-Bournens : the II Division, *red*, on the line Essert Peti-Epautheires-Donneloye. The outposts were thus about 14 kilometres apart. Midway between them, but rather nearer the II Division, lay the village of Vuarrens, which was the objective of both cavalries next morning ; these were not to cross their outpost lines before 6-30 A. M., the infantry and artillery not before 8 A. M.

The Corps troops were allotted as follows :—

To I Division *white* 1st Dragoons, Pontoon Train and Telegraph Company.

„ II Division *red* 2nd Dragoon, machine gun company, balloon section and 9th Field Artillery (6 batteries).

1ST DAY, 10TH SEPTEMBER. CONFLICT OF TWO FORCES BOTH IN MOVEMENT.

Colonel Isler, *white*, formed two columns :

Right, 1st brigade (5 battalions) and 2 batteries Field Artillery.

Left, 2nd brigade, Carabineer battalion, and 2 batteries Field Artillery,

with orders to move, one on each side of the main road Lausanne-Yverdon.

Colonel Secretan, *red*, also formed two columns with Echallens as their objective :

Right, 1 regiment (three battalions), 2 batteries Field Artillery and the Engineer units to move along the high road.

Left, remainder of the force to move by Ursins-Pailly-LeChauchy.

The cavalry of both sides started at 6-30 and came into contact south of Vuarrens ; the umpires decided in favour of the Reds, and the Whites retired behind Echallens, followed by the Reds who established their mitrailleuses on a hill north of the town, by the fire of which and of dismounted dragoons they delayed the advance of the white infantry long enough to enable their own force to take position on both sides of Vuarrens. By 9-30 the 9th Field Artillery (six batteries) had opened fire from the high ground east of that village.

The Whites had now deployed, and advanced to the attack across the open plain between Echallens and Vuarrens. On their coming to close quarters the 'cease fire' sounded.

At this juncture the Director of the Manœuvres, the Corps Commander Colonel Techtermann, had reports made to the Divisional Commanders to the effect that the main red army had occupied the heights east of the Venoge (a small river flowing into Lake Geneva east of Morges), that the main white army was halted on the line Lausanne-LeMont-Morrens and that the detached division was to cover its right flank.

This necessitated a retreat of the I Division (*white*) in an oblique direction on Poliez le Grand. The II (*red*) followed, pivoting on its left and forming one regiment into a reserve north-west of Echallens,

whilst their powerful artillery took up a final position near Villars le Terroir. The action was all over before 2 P.M.

That evening the outposts were on the following lines:—

I Division (*white*), Dommartin-Poliez le Grand-Bottens.

II " (*red*), Bretigny-Villars le ferroir-Fey

not more than 3 kilometres apart.

2ND DAY, 11TH SEPTEMBER. RED FORCE ATTACKS WHITE IN POSITION.

The ground east of the Lausanne-Yverdon high road rises gradually to the hilly wooded region known as the Jorat, and behind the village of Poliez Pittet forms a steep escarpment; this line, about 4 kilometres in length, was chosen by Colonel Isler (*white*) for his main position.

Colonel Secretan (*red*) formed two columns of attack.

Right, 3rd brigade and 9th F. A. (six batteries) to start from Villars le Terroir and attack the enemy in front;

Left, 4th brigade and 2nd F.A. (four batteries) to start from Fey and attack enemy's right.

The attack began at 7 A.M. The right column established one group of guns (three batteries) on the hill east of Villars le Terroir and pushed the other forward to north of Poliez le Grand which had been abandoned by the enemy and occupied by the red infantry, who then continued their advance until they came into close contact with the white infantry above Poliez Petit.

The left attack, half of whose artillery was somehow deflected to the right, was declared to have failed, and thus it devolved upon the right column to face the whole white force single-handed. At this moment (10 A.M.) the 'cease fire, sounded. About 11 o'clock heavy rain came on and the troops were sent to their cantonments.

This day the 2nd Dragoons emulated the exploits of the American civil war by making a raid round the enemy's rear, but the early termination of the operations prevented their reaping the fruits of their enterprise.

To enable the I Division to be attackers the following new "idea" was promulgated for the next day:

A *Red Force*, retreating, has halted on the right bank of the Mentue (a small stream flowing north into Lake Neuchatel), its left wing—II Division—has taken position on the heights between the Mentue and the Merine (a stream flowing into the Broye at Moudon) with outposts on the line Moulin des Engrins (east of Fey)—Sottens-Moudon.

A *White Force* pursuing has reached the heights of Pomy, Vuarrens, Bottens; its right wing—I Division—has its outposts on the line Peney le Jorat—Dommartin-Sugnens and has orders to push on vigorously next morning on Thierrens.

The corps artillery (6 batteries), the machine-gun company and the balloon section were transferred to the I Division (*white*).

3RD DAY, 12TH SEPTEMBER. WHITE FORCE ATTACKS RED POSITION.

The scene of this day's combat was an undulating plain by wooded heights with the village of Chapelle in the mi-

The right of the red position stretched towards the ravine of the Mentue in front of St. Cierges ; the centre was a hill north-east of Chapelle commanding the whole plain, and the left reached to the woody ground above the Merine, a front of about 4 kilometres. On the right was the 3rd brigade with one regiment (three battalions) in first line and one held in reserve near Biolettes ; the artillery (four batteries) was east of St. Cierges ; the centre and left were held by the 4th brigade and Carabineer battalion, a whole regiment being kept in reserve.

Colonel Isler (*white*) formed three columns of attack :

Right, 3 battalions on Sottens ;

Centre, 6 battalions, 3 squadrons with machien guns and 8 batteries, by Dommartin and Montaubion on Chapelle.

Left, 4 battalions, 2 batteries and $\frac{1}{2}$ battalion, Engineers by Naz on St. Cierges.

The bridge over the Mentue at Naz had been blown up, but the Engineers soon built a new one and the left attack was not long delayed. This column drove back the enemy's right in front of St. Cierges, but was checked by the reserve which was strongly posted along the edge of the woods east of the road joining that village and Chapelle.

Meanwhile, the right and centre columns had penetrated the defiles about Dommartin and Villars-Mendraz and debouched upon the plateau : their artillery came into action first near the hamlets of Peyres and Montaubion and shelled the village of Chapelle still held by the enemy's advanced troops : a second artillery position was found west of Sottens when the first line infantry had pushed beyond this nearly to Chapelle.

Colonel Secretan (*red*) now moved his artillery (four batteries) to the hill above Chapelle (east of the figure 821 on the map) where they had to form up under the fire of the eight batteries of the centre column at a range of about 2,000 metres. Overpowered by this superior fire, they had to fall back and this opened the way for the main infantry attack. Whilst the second line battalions of the centre column advanced by companies in column of fours and deployed for attack, and the rest of the white infantry were pressing in force up the hill north-east of Chapelle, the red reserve of three battalions issued from the woods and delivered a counter-attack. This brought the contending troops into close contact and the 'cease fire' was sounded about 10 A.M.

It would have been better, as things turned out, if the red artillery had been at the outset posted on the hill they occupied later, as it was the most commanding position in the field, but the Commander evidently anticipated the attack on his right flank, and in any case it is a question whether they could have held on against such a heavy preponderance of guns long enough for him to profit by his strong reserves.

The weather this day was sunny and very clear, and the view of the field from a height was quite picturesque.

The cavalry did not take any prominent part in these two days' combats.

This ended the first phase of the grand manœuvres. The second phase, which opened on Monday, 14th, consisted of the operations of the united corps d'armée against a 'Combined Division' formed for the purpose from troops of other army corps, to the number of 14 battalions, 6 squadrons with a machine gun company, and 6 batteries of artillery.

SECOND PHASE—ARMY CORPS *v.* COMBINED DIVISION.

The idea promulgated was as follows :—

A Red Force—*I Corps d'armée*, Colonel A. Fechtermann—coming from Geneva has crossed the upper Broye (river flowing northward through Moudon and Payerne) and is ordered to move by Sivrîez, Romont and Freyburg on Berne.

A White Force—*Combined Division*, Colonel G. Wassmer of the General Staff—is to oppose this corps and delay their march to the utmost possible.

The red outposts were on the line Chavannes les Forts-Sivrîez-Chesailles-Neyruz; the white on the line Fetigny-Torny le Petit-Torny le Grand-Lentigny-Cottens; about 15 kilometres apart.

The white cavalry was not to cross their outpost line before 6 A.M. and the infantry not before 7-30 A.M. Similarly the red cavalry and infantry were not to cross the line Vauderens-Moudon-Neyruz before the same hours.

4TH DAY, 14TH SEPTEMBER. FORCE DELAYING THE ADVANCE OF A STRONGER ONE.

The red force was formed in two columns :—

Right, I Division, with the corps artillery, to move on the line of the Glane through Sivrîez, Romont and Villa St. Pierre.

Left, II Division, on the high ground east of the Broye through Moudon, Dompierre and Chatonnaye.

About midway between the opposing forces, situated on a high hill, is the town of Romont forming with the cemetery on its south side a naturally strong position; this the white side succeeded in seizing with its cavalry, machine gun company, and the Carabineer battalion of its left column, who held it against the advanced guard of the I Division. The reds eventually brought up 5 battalions supported by the fire of 7 batteries, but it was not till 11 A.M. that the umpires considered the place captured, and the whites retired.

Meanwhile the red left column was making steady progress and had captured the village of Villars Bramard.

This day afforded ample opportunities for the cavalry with their mitrailleuses to take up successive positions to cover the retreat of the infantry, and the last episode was a duel towards 2 P.M. between machine guns supported by dismounted fire between the villages of Villarimbout and Chatonnaye.

This was a fatiguing day for the troops; rain had fallen all Sunday and the following night, and the weather continued rainy all day, making the country very heavy. The baggage trains did not come up till late in the afternoon. The troops manœuvred every day in full marching order.

The *Red Force* halted with outposts on the line Grange la Battia-Villarimbout-Sédeilles-Villarzel; head-quarter of corps and I Division at Romont, II Division at Villars Bramard.

The *White Force* had drawn to its left towards the valley of the Glane, and placed its outposts somewhat in advance of those of the previous night on the line Granges-Middes-à la Rape-Orsonnens in close proximity to those of the enemy.

5TH DAY, 15TH SEPTEMBER. WEAKER FORCE ATTACKED BY STRONGER.

The *White Force* withdrew early to a position north of Noreaz and south-west of Avry-sur-Matran forming two almost distinct positions with low ground between them. The *right* was occupied by 6 battalions and 2 batteries, the *left* by 2 battalions of Carabineers, 4 batteries in 1st line, and a reserve of 6 battalions.

The *Red* commander formed three columns:—

Right, 6 battalions and 4 batteries, on Matran,

Centre, 7 battalions and 6 batteries, on Onnens,

Left, 9 battalions and 4 batteries, on Torny le Grand and Prez, 4 battalions in reserve.

The left column was the first to arrive in front of the enemy's *right* position, and was soon supported by the artillery of the centre; after about an hour's bombardment of 60 guns against 12 the infantry advanced to the attack, which was adjudged to have succeeded.

By this time the other two columns (constituting the I Division) with the cavalry on the extreme right had opened their attack on the enemy's left, and the corps artillery (6 batteries) in the centre were now able to turn their fire on this part of the *white* position.

Colonel Wassmer now launched a counter-attack with his reserve—6 battalions—on the right of the I Division. At this stage the Director of the Manœuvres, Colonel H. Bleuler, stopped the proceedings.

The occupation of a divided position in face of a superior enemy seems somewhat risky, and the massing of the corps artillery on their centre enabled the attackers to take advantage of this. The *white* left was the important flank, but it is very doubtful whether this counter-attack supported only by 24 guns would have succeeded, against 13 battalions and 60 guns with a reserve of 4 battalions behind them?

This brought the manœuvres to a close.

The reader will probably have observed a tendency towards the adoption of stereotyped advances leading to frontal attacks and parallel battles, and an absence of wide turning movements, of which, however, there was one case in the earlier field days of brigade against brigade.

In a cavalry where the horses are almost the rider's own property, one would rather expect to find them spare their mounts, but this was not the case; they worked their horses well and also showed considerable aptitude for dismounted action.

In the artillery the driving was good; fire was opened at fully 4,000 yards, but the regimental and group commanders did not precede their guns sufficiently to reconnoitre their positions; guns were pushed vigorously to the front, perhaps at times too much so, and the attack was always prepared by artillery fire.

Infantry fire was always independent, but controlled; there were no volleys; firing lines were thick, and when all supports had been absorbed the men sometimes fired in two ranks, the men in rear standing and firing over the heads of those kneeling in front. Concealment was little practised and entrenching not much resorted to. Shelter trenches were of the straight, shallow type without any effort to render them invisible. In all advances the officers led with drawn swords, and the assault was delivered by battalions in dense swarms with bayonets fixed, colors flying and bands playing.

The field telegraph was employed to keep up connexion between different columns, but there was no visual signalling. Motor cars were used by the staffs. The order of march of the trains was very well preserved and the ammunition carts and entrenching tools were always well pushed forward.

The theatre of the manœuvres includes some of the ground crossed by the French in the campaign of 1798 when the Vaudois joined the invaders against their Bernese masters. It is a very favourable country for manœuvring with rolling hills, well wooded, provided with good roads, and quite unbroken by hedges or fences. At the time of the manœuvres there was a great quantity of land under grass, and the corn had been all cut and gathered.

The weather during the first eleven days was hot and dry, but this was followed by a sudden fall in temperature and much rain.

On the 16th the First Army Corps was reviewed near Payerne by Federal Councillor Müller, a military officer, head of the War Department.

The infantry of the I Division was drawn up in two lines of battalion columns, the cavalry brigade in line of squadron columns at right angles to the infantry, the Engineers occupying the corner thus formed between them, whilst the whole of the artillery were in two lines on the left and a little in rear of the infantry. The II Division on a hill about 300 yards behind the first.

The inspecting officer, accompanied by the foreign attachés rode all along the lines, after which the troops marched past. The infantry led in column of "pelotons," each division headed by its cyclists and guides, its engineers and hospital corps bringing up the rear. They followed the pontoon train and telegraph company and after a short interval, the artillery at the trot by batteries. Lastly came the cavalry also at the trot by troops, swords at the 'carry,' with their machine guns in rear.

The cavalry would have looked more effective in squadrons. The infantry marched past at the sling, right arm extended and 'eyes right.' The military chaplains marched in uniform taking post beside the colors, which were carried on the inner flank of the 4th "peloton." Only the corps and divisional commanders saluted with the sword.

Immediately after the review, the various corps started for their demobilization stations, some by rail and some by march route.

The annual manœuvres are thus used to practice the railways in conveying troops, guns, horses and wagons. All was done without any confusion or interference with the ordinary traffic which was itself this day much increased owing to the crowds of sightseers who came to witness the review.

The demobilization of the troops of the Canton Vaud, amounting to 10 battalions, 4 squadrons and 4 batteries, was carried out at Morges on the 16th, 17th and 18th September; that of the mounted corps first and the foot last. The guns, transport wagons, etc., were returned to the arsenal on demobilization. On these occasions a minute inspection is made of all clothing, arms and equipment, and unserviceable articles are replaced, damages assessed, and small books written up.

Cavalry horses are inspected by the regimental veterinary surgeon; hired horses by both a military and civil veterinary officer, and when passed are handed over to their civilian owners.

Colors are returned to the arsenal accompanied by the regimental bands and an armed escort.

Lastly, the men are dismissed and go off with their arms, accoutrements and uniform. There was a remarkable absence during these days of drunkenness and disorderly conduct.

As at mobilization, so on demobilization the men pay their own railway fares and recover the cost afterwards. Outside the station three temporary offices had been put up for the issue of tickets, and several special trains were run to enable every man to reach his home by the evening of the 18th. This date made a 19th day of service which was exacted this year and gave rise to some murmurings. The object of the extra day was to enable the inspection of equipment at demobilization to be carried out efficiently and without hurry. It was argued that the Federal law requires 18 days' service, but that it is within the powers of the *cantons* (in whose charge the equipment is) to demand more if necessary, and the Federal Government granted the extra day's pay.

There was a case this year of a soldier refusing to do his service.

The individual was a lawyer and newspaper editor, a believer in the 'brotherhood of all men,' an objector to all wars and, consequently, to armies and to the division of men into different nations. He was tried by court-martial and in his defence made a speech lasting over an hour, in which he set forth his views. He was found guilty of desertion and insubordination and sentenced to discharge with ignominy, three months' imprisonment and a year's loss of civil rights.

The Swiss army is weak in cavalry and artillery: the 8 Dragoon regiments are of only three squadrons each, and the squadrons of only 60 files: the divisional artillery groups have only two batteries. The *landwehr* cavalry have no horses and the artillery no field guns: a portion of the *landwehr* of the latter arm serve in the ammunition columns of the field army; beyond this the *landwehr* men of the cavalry and artillery would probably be employed in war as reserves to the active army, in remount depôts, on the lines of communication, with the *landwehr* train, with the heavy guns, or, lastly, with the fortress artillery.

Of the *landwehr* infantry there are enough battalions of the 'first levy' to add a 5th brigade with a carabineer battalion to each army corps.

The most striking feature of the Swiss army is the great efficiency attained with considerably less training than that enjoyed by our militia. This is the outcome of steady hard work in the recruit and other 'courses,' and in the annual or biennial embodiment.

A service of 18 days, deducting 2 for assembly and dismissal and 2 Sundays, leaves only 14 working days in two years. This gives little time for 'soldiering' of the spit and polish type or for mere barrack square 'smartness.' The Swiss soldiers are not so well set up, and perhaps are less imposing on ceremonial parades than those of regular armies, but they can, nevertheless, carry their 60 lbs. through a long day's march. They are intelligent and well educated, good shots, well conducted and thoroughly willing workers.

The Swiss are an essentially free people, but do not understand freedom to include a right to shirk one's personal duty in national defence. Their system provides for the security of their country with the least possible burden to its inhabitants, and enables them out of a population of under 3½ millions to put a trained army of 120,000 fighting-men in the field with reserves behind it, at a military expenditure, on all accounts, of less than a million and a half pounds a year.

In the first days of October took place some further manœuvres in which Position Artillery played the chief part. The scene was the ground between Lakes Neuchâtel and Bienne, where the small river Thièle connecting the two has been cut into a deep canal about 50 yards wide and 7 kilometres long.

The isthmus is bordered on the west by the Jura range and on the east by a wooded hill, Jolimont, which stretches from the south-east corner of Lake Bienne about two-thirds of the way towards Lake Neuchatel.

On Jolimont emplacements had been made for 12-centimetre guns near the top, and for 8-centimetre guns lower down on the south shoulder, while at the foot, on a low projecting plateau with a command of some 50 feet above the canal, the edge of a wood called the Niederholz about 1 kilometre long had been lined with almost continuous *schanzes* for infantry and 8-centimetre guns, flanked on either side by a battery of four 12-centimetre mortars.

On the Jura side were twelve 12-centimetre guns (without emplacements) and down in the valley, covered by an underfeature, four 12-centimetre mortars.

On the afternoon of October 1st some remarkable field firing was carried out. The artillery fired simultaneously from the hills on both sides of the valley at the foot of the hills opposite: the guns on Jolimont at targets representing attacking troops, those on Jura at the most prominent part of the Niederholz *schanzes*, and also at an earthwork higher up on the northern part of Jolimont.

The ranges were: from Jolimont 4,000 metres for the 12-centimetre guns, and 2,500 for the 8-centimetre which fired towards the shore of Lake Neuchatel; from Jura 4,000 metres to the upper earthwork and 2,500 to the Niederholz for the 12-centimetre guns, 2,000 metres for the mortars.

The Jolimont is about 600 feet above lake level; the guns on Jura were not so high, perhaps 500 feet: whilst the ground in the middle through which the canal flows is quite flat.

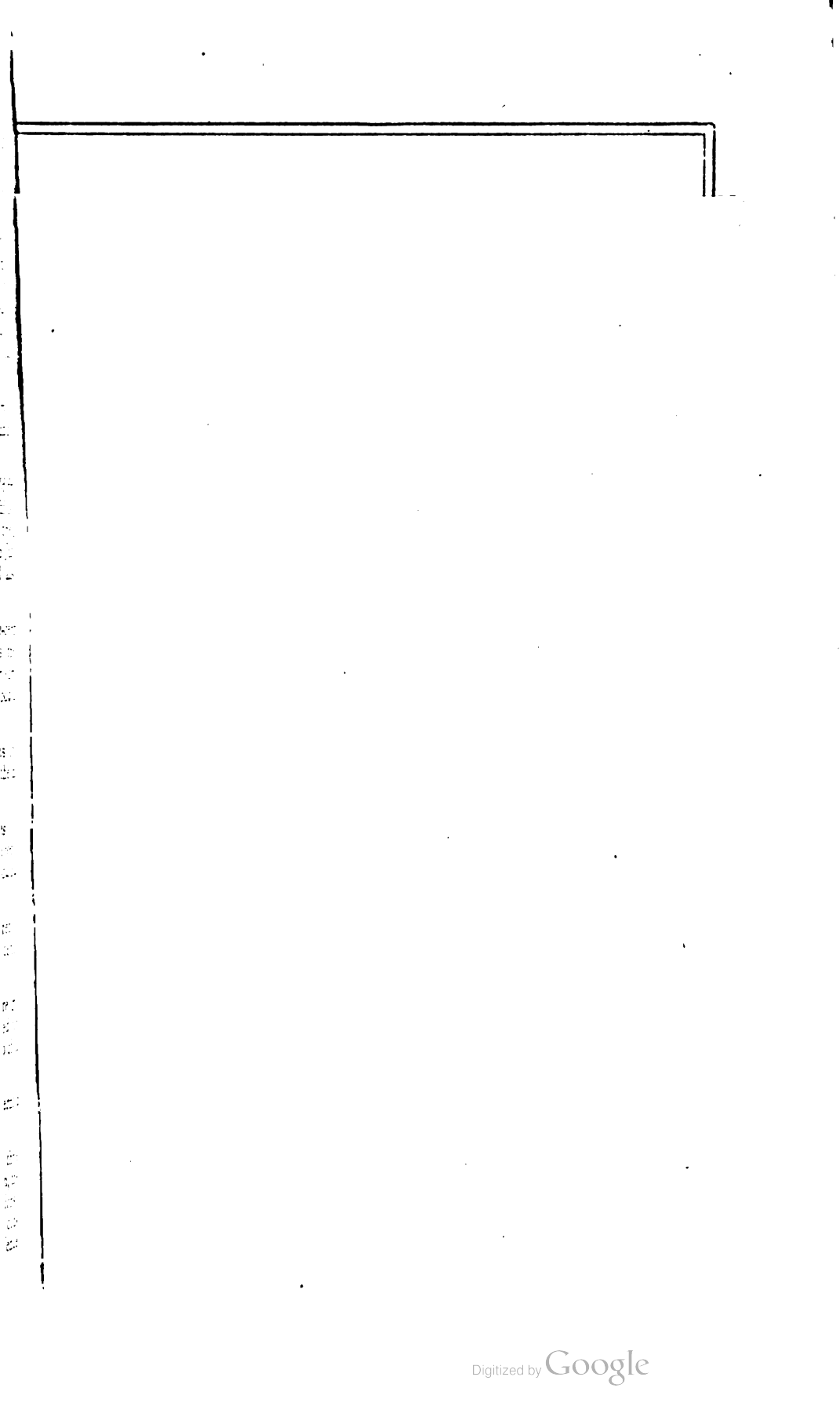
All this was in a populous country with numerous villages dotted about, yet all was carried out in most excellent order; there were no accidents, and the numerous spectators looked on as they would at a cricket match in England.

The Niederholz entrenchments were well built, in a broken line with thick traverses, and casemates, and like the gun emplacements higher up, were well concealed from view.

The portion which served as a target for eight 12-centimetre guns for nearly two hours at a range of only 2,500 metres sustained very little damage: one casemate was pierced by a shell and the top of the parapet knocked off in a few places.

There was a little more firing the next morning. In the afternoon began the infantry attack supported by position artillery.

The ground between the two lakes has been divided into three sections and the manœuvres were confined to the centre section, the troops told off for the attack consisted of one brigade (six battalions), half battalion of engineers and a bridging section. The brigade consisted actually of five battalions, the sixth being allotted to the defence aided by a company of casualties and a half battalion of engineers.



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One battalion advanced late in the afternoon and drove the defenders' outposts across the bridge, which was then supposed to be blown up; the remainder did not come up till after dark. A state of 'war' was maintained all night; searchlights were used by both sides and the heavy guns boomed at intervals. At daybreak an attempt was made by three battalions to cross the canal by a poontoon bridge, when the operations were brought to a close. As the canal was nowhere more than 600 yards from the Neiderholz *schanzes*, and lay in a perfectly open plain, the difficulties of forcing a passage may be readily imagined.

The guns were served by the 1st and 2nd Divisions of Position Artillery; there are five such in the Swiss army, of 5 companies and 40 guns each, but neither division had its full complement present on this occasion.

A curious feature in all these manœuvres was the use of the languages of the great rivals France and Germany in the same army and even in different battalions of the same regiment. The Thièle canal is the boundary between the two tongues, and in the last operations it so happened that most of the defenders were French-speaking troops in a German-speaking country, and the attackers German-speaking troops among a French-speaking population who talked of them as *Allemands*.

The gun emplacements on Jolimont and the Niederholz *schanzes* are intended to be permanent and to form part of the national defences, and presumably later on the remaining sections of this terrain will be likewise fortified.

This ended the manœuvres in the western half of Switzerland for a period of two years.

It is hoped that this short account of the Swiss militia army may be of interest to British readers: there are some points of the system that seem well deserving of our attention and imitation.

HORSE-BREEDING IN INDIA.

BY MAJOR-GENERAL T. B. TYLER, C.S.I., R.A.

General Sir John Watson disclaims "the entertainment of an unduly gloomy view of horse breeding in India," which was the impression I received of his opinions after reading his article, and, on the contrary, declares he takes "the most hopeful views" of the recommendations of the Commission of 1900. I hasten to apologise for mistaking the drift of his arguments, and am heartily glad that, with one exception, he approves of those recommendations. I beg him also to accept an expression of regret from me in that I misunderstood his words: "that English blood has never been successful with any other class of animals"; he explains that he meant *Indian* animals, such as cattle, dogs and fowls, whereas I supposed he referred to horses only. The one exception to which I have alluded is his disbelief in the future success of the "Crown" breed, and he writes "*as far as I am aware* (the italics are his) we have not at the present moment a single representative descended from about a thousand imported sires, whereas should nature have intended the cross to be permanent we should have had.....not thousands but tens of thousands of such horses." Nature has not had a chance of manifesting her intentions on the subject at all. On page 16 of the report the Commission stated that they had seen four country-bred Imperial stallions, all of which, as far as I remember, were descended from imported thorough-bred sires, a very small number and not sufficient to controvert his arguments except in a minute degree, though three out of the four were suitable and successful sires. But why are there so few? Not because, so far as is known, nature has declined to allow her laws to be broken, but because the advisers of the Government of India have for many years insisted that no stallions, except imported ones, should be used, and that country-breds are unfit for employment as sires,—a theory strongly opposed by the Commission. There are a number of country-bred sires in the possession of natives, some of which were seen by the Commission (their pedigree could not be traced, but they were, no doubt, in some cases, the descendants of imported horses, but they seemed to have been selected on no principle, and, like their progeny, were reared under conditions which can only lead to the production of the stunted, ill-shaped animals which are found all over India. As is well known, there is no grazing procurable in the plains except for a few weeks in the year, and for many months the young stock are tied up by head and heel and given exercise,—a system of treatment entirely at variance with nature's scheme for horse-breeding. The Commission framed their proposals in accordance with nature's scheme, and I shall be surprised if, after the new system

has had a few years' trial, there is not a substantial increase in the number of country-breds maintained as stallions for Imperial and District requirements.

Sir John Watson makes no allusion to the recommendation of the Commission that a proportion of Arab sires and of sires of the well-defined native breeds should be employed in the production and maintenance of the "Crown" breed (pages 53 and 54 of Report), and apparently does not observe that we carefully refrained from advising that the thorough-bred should be employed at the studs in any undue proportion. I hope I do not misunderstand him, but as he uses these words—that he "hesitates to put faith in the 'Crown horse' who is to be the descendant of more English sires," I can only suppose that he believes the Commission rely entirely on the English sire to the exclusion of all others.

However, the formation and maintenance of the Indian breed of horses of the future are not in our hands ; indeed, as Sir John Watson writes, "we may safely leave them (the new horse-breeding department) to work out all these questions, and come to a right conclusion." What conclusions will be arrived at time alone can show.

I must, however, protest against the designs of nature being taken as known before she has had full opportunity for developing them.

TO THE SECRETARY,

UNITED SERVICE INSTITUTION IN INDIA.

DEAR SIR,

In my lecture on the Campaign in Kumaon, published in the October number of the Journal, I find I have referred to a monument erected on the hill of Kalunga. This is wrong, as I discovered when subsequently visiting the place last May. The hill is covered with thick jungle, amid which the foundation walls of the Fort and its subsidiary defences can with difficulty be traced. The monument itself stands near Dehra, but in sight of the historic hill, while another old monument, from which the tablet has been removed, stands in the fields at the northern extremity of the hill, near the path leading to Rajpur.

Yours truly,

BAREILLY ;

WM. G. HAMILTON, *Major,*

The 31st December 1903. }

Norfolk Regiment.

PRECIS OF FOREIGN MILITARY PAPERS.

FRENCH PAPERS.

Revue de Cavalerie.

August.—The *Revue de Cavalerie* being the mouth-piece of the French Cavalry, one must naturally conclude that it voices the general opinion of the service on matters connected with it. The great question, which of late has been agitating the minds of French Cavalry soldiers, is the future rôle of cavalry in war, and in the numbers at present under review, the general bias of the service in favour of the shock tactics and cold steel school is very strongly expressed. So unanimous, indeed, are all the writers in condemning the "new" or "American" school who advocate the dismounted action of cavalry, that one begins to think that in France, at any rate, the "new school" must consist entirely of infantry men!

A writer on this subject in the August number complains of the vacillating policy of the authorities with regard to cavalry tactics ever since 1870. How they have blown hot and cold alternately, now recommending shock tactics, now fire tactics, and anon attempting to combine the two.

An out and out "laudator temporis acti," the writer trots out once more the Napoleonic cavalry and, with much warmth, demonstrates to all who may be inclined to doubt him that far from relegating their tactics to the glass cases of a museum to keep the bearskins of Napoleon's grenadiers company, they should be inculcated in the minds of the rising generation of cavalry men as they will be as useful in the future as they were in the past. "Principles," he remarks, "have remained unaltered." "The new policy is a policy of timidity and cavalry, if they wish to be of any use at all, must be willing to make sacrifices."

Cavalerie et Mandarinat is a somewhat flippant article on the subject of the entrance examinations to the French Staff College. The author is in favour of abolishing paper examinations and replacing them by practical tests.

In this suggestion he is, by no means, the first in the field; all armies have long striven to find the ideal method of selection, but so far the written competitive examination holds the first place and there can be little doubt of its remaining there.

September—*La cavalerie et le canon* is an extremely spirited article which repays reading. It formulates a plea for the provision of light, quick-firing guns for use with cavalry.

Commencing with a gloomy picture of the drawbacks of the present horse artillery guns attached to Cavalry Brigades, their want

of speed, their limited mobility in bad country, and their comparative slowness in coming into action, ranging and changing target, the writer proceeds to point out the grievous burden their safeguarding entails upon the cavalry.

He then discusses the cavalry and artillery Regulations, comparing them greatly to the disadvantage of the latter.

To the presence of these horse artillery guns he ascribes the decadence of cavalry. Having deprived the cavalry soldiers of their dash by setting a drag on them in the shape of guns, the authorities have, he contends, tried to neutralize the loss of speed by fire effect, but have only succeeded in creating a hybrid arm which is useful neither as cavalry nor as infantry.

Acknowledging the difficulty of finding a suitable gun for employment with cavalry, the writer is confident that with encouragement from the proper quarters it will be found and when found, will rejuvenate cavalry and restore to it all the glories of the past.

Mitrailleuses de cavalerie.—Reviews briefly the attitude of the various European armies with regard to machine guns in general and their application to cavalry in particular. From his study of the question, the writer is convinced that machine guns have come to stay and will be given a prominent place in wars of the future.

October.—This number contains the first part of a review of the New (provisional) Musketry Regulations for French Cavalry. Apparently the publication of the book (which appeared in September last) has been awaited with much curiosity and interest as the service felt that either directly or indirectly the New Musketry Regulations would afford some clue to the attitude of, "the authorities" with regard to the two schools of Cavalry. These expectations, however, have not been realized, as the book conveys no hint, but is, apparently, a straightforward manual of instruction and nothing more. It is well received by its critics and is considered a distinct improvement on its predecessor.

The article entitled *Baucher ou d'Aure* is another of the violent attacks on the dismounted action school and the writer specially warns his countrymen not to be carried away by the so-called "lessons of the Boer War." He naively remarks that the "failure" of the British Cavalry in the face of the Boer's rifle fire is no reason why the principles of generations should be at once set aside as obsolete. In this he strikes a note which one hears sounding throughout General Maude's recent book on Cavalry.

For the rest, all the numbers of the "Revue" contain interesting historical articles on the French Cavalry.

Revue du cercle Militaire.

The second number for August contains a criticism on some observations regarding recruiting made in the Army and Navy Gazette. According to the Gazette, what is wanted in order to raise the physical

standard of our recruits is the increased prosperity of the British working classes, which would ensure better feeding, clothing and improved surroundings and would tend towards a higher physical standard. Captain Panivin in commenting upon this, points out that, were this increased prosperity realized the logical result would be not better, but worse recruiting as, under a voluntary system of enlistment, it is only those who are not prosperous in civil life who enlist in the army.

The series of articles on the North Sea-Mediterranean canal is continued and its economic aspect is examined. According to the writer dealing with the question, the canal is not sound from a financial point of view. Its length is given as 245 miles: the maximum speed ships could traverse it at would be 10 knots an hour with long waits as the 18 locks. Ships steaming day and night would take two days to traverse it and, if moving only by day, they would take 4 days. Summing up, the writer thinks that the seven hundred million francs which the construction of the canal would cost, would be better spent in adding a squadron to the Navy. It goes without saying that the writer is a Naval Officer.

No. 37 (dated 22nd August) contains an interesting translation from the Journal of the United States Cavalry Association on the subject of Japanese Cavalry.

According to the American Officer, the Japanese Cavalry is still far below the European standard and is considerably behind the Japanese Artillery and Infantry.

In the 12th of September number a précis of the Proceedings of the recent Royal Commission on the South African War begins and runs through subsequent numbers.

The supply of "under officers" is, apparently, causing the authorities at French Army head-quarters considerable anxiety and is bringing home to them, no doubt, some of the difficulties under which we labour with our voluntary system. The same baits, to which we are by now well accustomed, are suggested to entice the right stamp of man to stay in the army and become an "under-officer." Higher pay, less work, the promise of employment on quitting the service, etc., etc.

In the 17th October number will be found a statement showing the distribution of French troops (Infantry and Artillery) in the colonies.

No. 45 (dated the 7th November 1903) gives a resumé of the French Military Budget for 1904. There can be no doubt but that the French Government find it more and more difficult each year to procure the requisite number of men for the Army.

Revue Militaire Suisse.

Amongst others, the review contains two very interesting articles. Of these the first treats of Alpine warfare and, although the ideas

put forward contain nothing very original, they are stated clearly and concisely and draw attention to many points, which we, who have the prospect of fighting in a mountainous country ever before us, would do well to bear in mind.

The second article deals with the employment of the Swiss Cavalry.

In Switzerland the number of mounted men is small and the writer of the article puts forward suggestions for their economical as well as efficacious employment.

C. W. G. RICHARDSON, *Captain.*

RUSSIAN PAPERS.

Voyenni Sbornik.

June.—Amongst the articles contained in this number, the following, perhaps, may be taken as possessing the most general interest for us :

1. *Prince Eugene Napoleon.*—This is a historical sketch which treats of the 1809 Campaign in Italy, which was undertaken by the Austrians at a time when the French had their hands full fighting the British in the Peninsula. Prince Eugene Napoleon was "Viceroy" of Italy. The article is illustrated by two excellent engravings.

2. *In Rear of the Army of the Danube.*—A retrospect of the Russian Campaign in the Balkans. Though written with the special object of paying a tribute to General Drenteln, who commanded the Lines of Communication of the Russian Army, this is a most interesting and useful article. The author remarks that the glamour of the deed in front throw into the shade the more prosaic but none the less useful work which is done in rear of the Army. He shows how the Commander of the Lines of Communication of an Army must be not only a soldier, but an administrator, an engineer and skilful diplomatist, not to mention various other rôles which call for judgment, tact and self-reliance. The hero of the article, General Drenteln, appears to have possessed all these qualities to a pre-eminent degree.

3. *Events in Wilna.*—A historical sketch of the commencement of Napoleon's disastrous Campaign in Russia (1812). The article discusses the strategic value of Wilna and gives some interesting details of Napoleon's plans for the Campaign. It is instructive to study these plans in the light of after events and to contrast them with what is now known of the Great Emperor's ideas on war.

4. *Remarks on the Austrian Infantry.*—The author thus sums up his remarks.—"We have seen that *en masse*, the Austrian soldier is considerably inferior to the German; education is on a very low plane and owing to the differences in dialects within the army, one half may be said not to understand the other half; the under officer

question, owing to the reduction (contemplated) of the term of service to two years, requires immediate decision if the situation is to be saved."

5. *The war training of the Sotnia*.—Continues the series. The points dealt with in the present article are—

- (a) The inspection.
- (b) Manœuvres.
- (c) Musketry—mounted and dismounted.

6. *Mounted Sappers*.—A discussion on the utility of the arm.

July.—The following are some of the articles contained in this number :—

1. *Prince Eugene Napoleon*.—A continuation of the article mentioned in the précis of the June number.

2. *Rôle of the Russian fleet in the war of 1877-78*.—The first of a series of articles on the subject. Beginning with a review of the geographical conditions in the White, Baltic and Caspian seas, the lines of communications by rail and by water, the writer goes on to discuss the advantages conferred upon Turkey by her geographical position. He then turns to the political aspect of affairs at the time; the effect of the Treaty of Berlin on Russia's power in the Black Sea, the hostile attitude of England and how the balance of power in the Levant influenced her interests in Egypt and the Suez Canal.

Part I of the article ends with a discussion of the strategical situation.

Part II deals with the movements of the Russian fleet before the opening of the Campaign—the operations carried out by the ironclad "Petrovavlovsk"—the failure of the Russian withdrawal from the Mediterranean—the progress of the campaign on land and, finally, the inaction of the Russian fleet.

Part III is devoted to technical questions relating to the naval matériel of the two belligerents—the advantages of various types of ironclads, their armament and building are discussed and the naval forces are compared.

3. *War training of the British Infantry*.—This is a review (as apart from a *critique*) of our infantry training. It would have been interesting had the writer given the impressions our various rules and exercises conveyed to him.

4. *The War Training of a Sotnia*.—Continued from the last number, the points dealt with are :—

- (1) Guard duties.
- (2) Reconnaissance.

5. *Work of the German Railway Troops in China in 1900-01* — This article repays reading and would prove interesting to those who are concerned with the development of military railways. The article ends with the following words: "The varied and extensive employment of the Eastern-Asiatic Railway Battalion in China, contemporaneous as it was with the first trial in actual war of the German Railway Troops, showed their splendid training for the carrying out of all sorts of railway work under severe field service conditions."

6. *The British Army after the South African Campaign*.—A series of articles is promised on this subject. The present article deals with the following points:—

- (a) The demobilization of the land forces.
- (b) Reorganization of the standing Army, Militia, Yeomanry and Volunteers.
- (c) Reorganization of Administrative Branches.
- (d) Fulfilment of the reforms of 1901.
- (e) Composition of the land forces on the estimates of 1901-02.
- (f) Further reorganization of the land forces in the course of 1902 and during the early months of the present year.
- (g) Present condition and incompleteness of the land forces.

The writer ends by predicting that the time is not far off when universal Military Service will have to be resorted to by the British Government.

C. W. G. RICHARDSON, *Captain*.

PRÉCIS OF THE GERMAN PAPERS.

Internationale Revue ulber die gesamten Armeen und Flotten (September to November and Supplements).—The first number gives a good description of the fortifications of Belgium, which are designed with a view to preventing the country from once more becoming the "cockpit of Europe." In case of another Franco-German war they ensure her neutrality, and in a case of invasion give time for the Powers, who have guaranteed her existence as an independent country, to come to her aid. The difficult almost roadless country through the Ardennas, which is not crossed from east to west by a single line of railway, would force either of the two named Powers, who wished to infringe her neutrality, to choose the valleys of the Mense and Sambre as the line of advance. In these valleys all the railways centre at Namur and Liege. The possession of these two places would be indispensable to the invader. They are consequently fortified. Namur, the junction of six railway lines, is protected by nine forts; Liege, the junction of eight lines, by 12 forts. In the general scheme of defence Antwerp, which is also strongly fortified

and protected by inundations, plays the part of a central keep. In it are gathered all the depôts for the mobilization of the Belgian army. It would form the base and pivot for the field army in the event of the Belgians taking the field and acting against the flanks of the armies infringing their neutrality. The forts appear to be somewhat too near the city to be an effectual protection against bombardment by modern guns. Questions of clothing in the French army are also discussed. A list of the weights carried by the infantry in various armies is given. According to this the Danish soldier with 66 lbs. is the most heavily weighted, whilst only the Dutchmen carry a lesser weight than the 54 lbs. of the British infantry. The soldiers of Julius Cæsar carried the same weight as the Dane does to-day, whilst Napoleon's men were burdened with a weight of 72 lbs.

French experiments put the colours of uniforms in order of visibility as being white, blue, green and red. They consider grey and greenish-brown least visible, further experiments in a chestnut colour are now to be tried.

The October number announces the introduction into the German army of a form of semaphore signalling with flags. Up till the present time the German army had not adopted any form of flag signalling, though their navy took it into use three years ago.

The number also contains information regarding the new scheme for employing in the French navy selected natives of Algeria and Tunis belonging to the sea-faring tribes. Service is to be voluntary and the first term of service is to be three years, but men can re-engage and serve for pension. They will serve under their own petty officers and never be less than four on one ship. They will wear the ordinary naval uniform with a red flag.

The November number announces the measures taken by the Russians in the Far East to do away with the necessity for using interpreters. With this end in view three men from each company and sotnia are to be deputed to learn Chinese!

The 54th French supplement of this paper contains an interesting article on the importance from a military point of view, particularly as a means of transporting supplies, of the natural and artificial waterways of a country. The article is a review of a book by Major Victor Kurs, which seems to deal very exhaustively with the subject. The author shows how with a proper organization the canals and other French waterways could have been used during the various phases of the campaigns of 1870-71. Such use would have relieved to a very great extent the strain on the railways. With a view to relieve the German railways of the great press of work, which would be placed on them in the event of mobilization, the author strongly urges the completion of the system of canals from west to east linking all the great rivers of Germany with the Vistula and the Memel.

The 55th French supplement translates an article from the *Militär Zeitung*, which criticizes the small use that was made by the Germans of their heavy artillery in 1870-71 and suggests how this might have been more generally and effectually utilized. Another short article

deals with the question of cooking on the march and describes some of the various field ovens which are under trial for this purpose.

The 56th French supplement contains a couple of articles on the long-range fire of infantry and on the value of fortified positions in the field. The "Lessons of the Boer War" are largely utilized in these articles. The first named paper, after an historical sketch of the subject and the allied employment of machine guns, brings out the fact that the effect produced by the fire of the Boers at medium and short ranges has caused most people to overlook the fact that they very often used long-range fire with very considerable effect. The writer leans to the opinion expressed by Lieutenant Von Wickmann in the articles reviewed below that the fire of a squad of riflemen has a greater effect than that of a machine gun. He would, however, form this squad of selected long-range marksmen who should be specially armed and equipped for this purpose.

The 43rd German supplement contains a long account of the new service regulations for the French army. The author says that training for good shooting and good marching is the principal aim of these regulations, many of which he considers to be worth following.

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The author has a very high opinion of the value of the "pom-pom". He quotes instances of its successful use: at Strid Kraal in the Wakherstrom District on the 24th July 1900 a single "pom-pom" stopped the advance in extended order of 500 English cavalry. The General explains this to be due not to the actual number it killed but by the "nerve shock" caused by its percussion shell. At Abraham's Kraal a few of these guns put a complete British batteries out of action. At Spionkop again the "pom-poms" had the greatest effect both moral and physical on the British infantry. In this last instance the rocky ground brought out the full power of its percussion

PRECIS OF FOREIGN MILITARY PAPERS.

FRENCH PAPERS.

Revue de Cavalerie.

August.—The *Revue de Cavalerie* being the mouth-piece of the French Cavalry, one must naturally conclude that it voices the general opinion of the service on matters connected with it. The great question, which of late has been agitating the minds of French Cavalry soldiers, is the future rôle of cavalry in war, and in the numbers at present under review, the general bias of the service in favour of the shock tactics and cold steel school is very strongly expressed. So unanimous, indeed, are all the writers in condemning the "new" or "American" school who advocate the dismounted action of cavalry, that one begins to think that in France, at any rate, the "new school" must consist entirely of infantry men!

A writer on this subject in the August number complains of the vacillating policy of the authorities with regard to cavalry tactics ever since 1870. How they have blown hot and cold alternately, now recommending shock tactics, now fire tactics, and anon attempting to combine the two.

An cut and out "*laudator temporis acti*," the writer trots out once more the Napoleonic cavalry and, with much warmth, demonstrates to all who may be inclined to doubt him that far from relegating their tactics to the glass cases of a museum to keep the bearskins of Napoleon's grenadiers company, they should be inculcated in the minds of the rising generation of cavalry men as they will be as useful in the future as they were in the past. "*Principles*," he remarks, "have remained unaltered." "The new policy is a policy of timidity and cavalry, if they wish to be of any use at all, must be willing to make sacrifices."

Cavalerie et Mandarinat is a somewhat flippant article on the subject of the entrance examinations to the French Staff College. The author is in favour of abolishing paper examinations and replacing them by practical tests.

In this suggestion he is, by no means, the first in the field; all armies have long striven to find the ideal method of selection, but so far the written competitive examination holds the first place and there can be little doubt of its remaining there.

September—*La cavalerie et le canon* is an extremely spirited article which repays reading. It formulates a plea for the provision of light, quick-firing guns for use with cavalry.

Commencing with a gloomy picture of the drawbacks of the present horse artillery guns attached to Cavalry Brigades, their want

of speed, their limited mobility in bad country, and their comparative slowness in coming into action, ranging and changing target, the writer proceeds to point out the grievous burden their safeguarding entails upon the cavalry.

He then discusses the cavalry and artillery Regulations, comparing them greatly to the disadvantage of the latter.

To the presence of these horse artillery guns he ascribes the decadence of cavalry. Having deprived the cavalry soldiers of their dash by setting a drag on them in the shape of guns, the authorities have, he contends, tried to neutralize the loss of speed by fire effect, but have only succeeded in creating a hybrid arm which is useful neither as cavalry nor as infantry.

Acknowledging the difficulty of finding a suitable gun for employment with cavalry, the writer is confident that with encouragement from the proper quarters it will be found and when found, will rejuvenate cavalry and restore to it all the glories of the past.

Mitrailleuses de cavalerie.—Reviews briefly the attitude of the various European armies with regard to machine guns in general and their application to cavalry in particular. From his study of the question, the writer is convinced that machine guns have come to stay and will be given a prominent place in wars of the future.

October.—This number contains the first part of a review of the New (provisional) Musketry Regulations for French Cavalry. Apparently the publication of the book (which appeared in September last) has been awaited with much curiosity and interest as the service felt that either directly or indirectly the New Musketry Regulations would afford some clue to the attitude of, "the authorities" with regard to the two schools of Cavalry. These expectations, however, have not been realized, as the book conveys no hint, but is, apparently, a straightforward manual of instruction and nothing more. It is well received by its critics and is considered a distinct improvement on its predecessor.

The article entitled *Baucher ou d'Aure* is another of the violent attacks on the dismounted action school and the writer specially warns his countrymen not to be carried away by the so-called "lessons of the Boer War." He naively remarks that the "failure" of the British Cavalry in the face of the Boer's rifle fire is no reason why the principles of generations should be at once set aside as obsolete. In this he strikes a note which one hears sounding throughout General Maude's recent book on Cavalry.

For the rest, all the numbers of the "Revue" contain interesting historical articles on the French Cavalry.

Revue du cercle Militaire.

The second number for August contains a criticism on some observations regarding recruiting made in the Army and Navy Gazette. According to the Gazette, what is wanted in order to raise the physical

standard of our recruits is the increased prosperity of the British working classes, which would ensure better feeding, clothing and improved surroundings and would tend towards a higher physical standard. Captain Panivin in commenting upon this, points out that were this increased prosperity realized the logical result would be not better, but worse recruiting as, under a voluntary system of enlistment, it is only those who are not prosperous in civil life who enlist in the army.

The series of articles on the North Sea-Mediterranean canal is continued and its economic aspect is examined. According to the writer dealing with the question, the canal is not sound from a financial point of view. Its length is given as 245 miles: the maximum speed ships could traverse it at would be 10 knots an hour with long waits at the 18 locks. Ships steaming day and night would take two days to traverse it and, if moving only by day, they would take 4 days. Summing up, the writer thinks that the seven hundred million francs which the construction of the canal would cost, would be better spent in adding a squadron to the Navy. It goes without saying that the writer is a Naval Officer.

No. 37 (dated 22nd August) contains an interesting translation from the Journal of the United States Cavalry Association on the subject of Japanese Cavalry.

According to the American Officer, the Japanese Cavalry is still far below the European standard and is considerably behind the Japanese Artillery and Infantry.

In the 12th of September number a précis of the Proceedings of the recent Royal Commission on the South African War begins and runs through subsequent numbers.

The supply of "under officers" is, apparently, causing the authorities at French Army Headquarters considerable anxiety and is bringing home to them, no doubt, some of the difficulties under which we labour with our voluntary system. The same things, to which we are by now well accustomed, are suggested to exist in the right stamp of man to stay in the army and become an "under officer." Higher pay, less work, the promise of employment on quitting the service, etc., etc.

In the 17th October number will be found a statement showing the distribution of French troops (Infantry and Artillery) in the colonies.

No. 45 (dated the 7th November 1903) gives a résumé of the French Military Budget for 1904. There can be no doubt that the French Government find it more and more difficult each year to procure the requisite number of men for the Army.

Revue Militaire Suisse.

Amongst others the review contains two very interesting articles. Of the first the first treats of Alpine warfare and, although the ideas

put forward contain nothing very original, they are stated clearly and concisely and draw attention to many points, which we, who have the prospect of fighting in a mountainous country ever before us, would do well to bear in mind.

The second article deals with the employment of the Swiss Cavalry.

In Switzerland the number of mounted men is small and the writer of the article puts forward suggestions for their economical as well as efficacious employment.

C. W. G. RICHARDSON, *Captain.*

RUSSIAN PAPERS.

Voyenni Sbornik.

June.—Amongst the articles contained in this number, the following, perhaps, may be taken as possessing the most general interest for us :

1. *Prince Eugene Napoleon.*—This is a historical sketch which treats of the 1809 Campaign in Italy, which was undertaken by the Austrians at a time when the French had their hands full fighting the British in the Peninsula. Prince Eugene Napoleon was "Viceroy" of Italy. The article is illustrated by two excellent engravings.

2. *In Rear of the Army of the Danube.*—A retrospect of the Russian Campaign in the Balkans. Though written with the special object of paying a tribute to General Drenteln, who commanded the Lines of Communication of the Russian Army, this is a most interesting and useful article. The author remarks that the glamour of the deed in front throw into the shade the more prosaic but none the less useful work which is done in rear of the Army. He shows how the Commander of the Lines of Communication of an Army must be not only a soldier, but an administrator, an engineer and skilful diplomatist, not to mention various other rôles which call for judgment, tact and self-reliance. The hero of the article, General Drenteln, appears to have possessed all these qualities to a pre-eminent degree.

3. *Events in Wilna.*—A historical sketch of the commencement of Napoleon's disastrous Campaign in Russia (1812). The article discusses the strategic value of Wilna and gives some interesting details of Napoleon's plans for the Campaign. It is instructive to study these plans in the light of after events and to contrast them with what is now known of the Great Emperor's ideas on war.

4. *Remarks on the Austrian Infantry.*—The author thus sums up his remarks.—"We have seen that *en masse*, the Austrian soldier is considerably inferior to the German; education is on a very low plane and owing to the differences in dialects within the army, one half may be said not to understand the other half; the under officer

question, owing to the reduction (contemplated) of the term of service to two years, requires immediate decision if the situation is to be saved."

5. *The war training of the Sotnia*.—Continues the series. The points dealt with in the present article are—

- (a) The inspection.
- (b) Manœuvres.
- (c) Musketry—mounted and dismounted.

6. *Mounted Sappers*.—A discussion on the utility of the arm.

July.—The following are some of the articles contained in this number:—

1. *Prince Eugene Napoleon*.—A continuation of the article mentioned in the précis of the June number.

2. *Role of the Russian fleet in the war of 1877-78*.—The first of a series of articles on the subject. Beginning with a review of the geographical conditions in the White, Baltic and Caspian seas, the lines of communications by rail and by water, the writer goes on to discuss the advantages conferred upon Turkey by her geographical position. He then turns to the political aspect of affairs at the time, the effect of the Treaty of Berlin on Russia's power in the Black Sea, the hostile attitude of England and how the balance of power in the Levant influenced her interests in Egypt and the Suez Canal.

Part I of the article ends with a discussion of the strategical situation.

Part II deals with the movements of the Russian fleet before the opening of the Campaign—the operations carried out by the ironclad "Petrovavlovsk"—the failure of the Russian withdrawal from the Mediterranean—the progress of the campaign on land and, finally, the inaction of the Russian fleet.

Part III is devoted to technical questions relating to the naval matériel of the two belligerents—the advantages of various types of ironclads, their armament and building are discussed and the naval forces are compared.

3. *War training of the British Infantry*.—This is a review (as apart from a *critique*) of our infantry training. It would have been interesting had the writer given the impressions our various rules and exercises conveyed to him.

4. *The War Training of a Sotnia*.—Continued from the last number, the points dealt with are:—

- (1) Guard duties.
- (2) Reconnaissance.

5. *Work of the German Railway Troops in China in 1900-01*—This article repays reading and would prove interesting to those who are concerned with the development of military railways. The article ends with the following words: "The varied and extensive employment of the Eastern-Asiatic Railway Battalion in China, contemporaneous as it was with the first trial in actual war of the German Railway Troops, showed their splendid training for the carrying out of all sorts of railway work under severe field service conditions."

6. *The British Army after the South African Campaign*.—A series of articles is promised on this subject. The present article deals with the following points:—

- (a) The demobilization of the land forces.
- (b) Reorganization of the standing Army, Militia, Yeomanry and Volunteers.
- (c) Reorganization of Administrative Branches.
- (d) Fulfilment of the reforms of 1901.
- (e) Composition of the land forces on the estimates of 1901-02.
- (f) Further reorganization of the land forces in the course of 1902 and during the early months of the present year.
- (g) Present condition and incompleteness of the land forces.

The writer ends by predicting that the time is not far off when universal Military Service will have to be resorted to by the British Government.

C. W. G. RICHARDSON, *Captain*.

PRÉCIS OF THE GERMAN PAPERS.

Internationale Revue ulber die gesamten Armeen und Flotten (September to November and Supplements).—The first number gives a good description of the fortifications of Belgium, which are designed with a view to preventing the country from once more becoming the "cockpit of Europe." In case of another Franco-German war they ensure her neutrality, and in a case of invasion give time for the Powers, who have guaranteed her existence as an independent country, to come to her aid. The difficult almost roadless country through the Ardennas, which is not crossed from east to west by a single line of railway, would force either of the two named Powers, who wished to infringe her neutrality, to choose the valleys of the Mense and Sambre as the line of advance. In these valleys all the railways centre at Namur and Liege. The possession of these two places would be indispensable to the invader. They are consequently fortified. Namur, the junction of six railway lines, is protected by nine forts; Liege, the junction of eight lines, by 12 forts. In the general scheme of defence Antwerp, which is also strongly fortified

and protected by inundations, plays the part of a central keep. In it are gathered all the depôts for the mobilization of the Belgian army. It would form the base and pivot for the field army in the event of the Belgians taking the field and acting against the flanks of the armies infringing their neutrality. The forts appear to be somewhat too near the city to be an effectual protection against bombardment by modern guns. Questions of clothing in the French army are also discussed. A list of the weights carried by the infantry in various armies is given. According to this the Danish soldier with 66 lbs. is the most heavily weighted, whilst only the Dutchmen carry a lesser weight than the 54 lbs. of the British infantry. The soldiers of Julius Cæsar carried the same weight as the Dane does to-day, whilst Napoleon's men were burdened with a weight of 72 lbs.

French experiments put the colours of uniforms in order of visibility as being white, blue, green and red. They consider grey and greenish-brown least visible, further experiments in a chestnut colour are now to be tried.

The October number announces the introduction into the German army of a form of semaphore signalling with flags. Up till the present time the German army had not adopted any form of flag signalling, though their navy took it into use three years ago.

The number also contains information regarding the new scheme for employing in the French navy selected natives of Algeria and Tunis belonging to the sea-faring tribes. Service is to be voluntary and the first term of service is to be three years, but men can re-engage and serve for pension. They will serve under their own petty officers and never be less than four on one ship. They will wear the ordinary naval uniform with a red flag.

The November number announces the measures taken by the Russians in the Far East to do away with the necessity for using interpreters. With this end in view three men from each company and sotnia are to be deputed to learn Chinese!

The 54th French supplement of this paper contains an interesting article on the importance from a military point of view, particularly as a means of transporting supplies, of the natural and artificial waterways of a country. The article is a review of a book by Major Victor Kurs, which seems to deal very exhaustively with the subject. The author shows how with a proper organization the canals and other French waterways could have been used during the various phases of the campaigns of 1870-71. Such use would have relieved to a very great extent the strain on the railways. With a view to relieve the German railways of the great press of work, which would be placed on them in the event of mobilization, the author strongly urges the completion of the system of canals from west to east linking all the great rivers of Germany with the Vistula and the Memel.

The 55th French supplement translates an article from the *Militär Zeitung*, which criticizes the small use that was made by the Germans of their heavy artillery in 1870-71 and suggests how this might have been more generally and effectually utilized. Another short article

deals with the question of cooking on the march and describes some of the various field ovens which are under trial for this purpose.

The 56th French supplement contains a couple of articles on the long-range fire of infantry and on the value of fortified positions in the field. The "Lessons of the Boer War" are largely utilized in these articles. The first named paper, after an historical sketch of the subject and the allied employment of machine guns, brings out the fact that the effect produced by the fire of the Boers at medium and short ranges has caused most people to overlook the fact that they very often used long-range fire with very considerable effect. The writer leans to the opinion expressed by Lieutenant Von Wickmann in the articles reviewed below that the fire of a squad of riflemen has a greater effect than that of a machine gun. He would, however, form this squad of selected long-range marksmen who should be specially armed and equipped for this purpose.

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The author has a very high opinion of the value of the "pom-pom". He quotes instances of its successful use: at Strid Kraal in the Wakherstrom District on the 24th July 1900 a single "pom-pom" stopped the advance in extended order of 500 English cavalry. The General explains this to be due not to the actual number it killed but by the "nerve shock" caused by its percussion shell. At Abraham's Kraal a few of these guns put a complete British batteries out of action. At Spionkop again the "pom-poms" had the greatest effect both moral and physical on the British infantry. In this last instance the rocky ground brought out the full power of its percussion

shell. The writer urges strongly the use of protecting shields with these guns. He instances the case of a Maxim-Nordenfeldt under his command at Braksfontein on the 5th August 1900, which by means of its shield was enabled to keep the field for several hours with the loss of only one of its detachment; although it was under the fire of infantry in good cover at 1,100 yards. The General, however, considers the shell power to be insufficient, and advocates the use of a larger calibre capable of a very rapid fire of percussion shell and efficiently protected by a shield.

The writer's remarks on machine guns of rifle calibre are also very interesting. The Boers on the whole made very little use of their maxims, which even in the hands of their trained men very soon got out of order. He does not consider the statement, which is so often advanced, that a machine gun is worth 50 rifles to be correct. It certainly can fire off an equal if not a larger number of cartridges, but except in special cases, such as when commanding a narrow defile, its effect is by no means equal to that of this number of rifles. An extended line of men cover the ground with fire far more effectively than can a single gun. Further the enemy can concentrate their fire on it, despite the small target it offers, in a manner they cannot hope to do on a line of men. He states that he did not observe that the men with a machine gun shot with any greater calmness than single riflemen. His final conclusions on this subject are :—

- (1) Too much reliance should not be placed on machine guns.
- (2) Machine guns should be used in as large masses as the ground will permit. (He instances the concentration of the fire of the British Maxims at Pieter's Hill on the 27th February 1900, which though firing from a distance of 3,300 yards on the Boer position completely spoilt the shooting of the defenders, though actually doing very little damage.)
- (3) Except in the case of cavalry, who should be given a free hand, the commander should decide on the method of employment of the machine guns, which should not be allowed to get out of his control.
- (4) They should be very successful if properly used and served by a highly trained personnel.

Owing to the large number of the different kinds of guns in the possession of the Boers there was considerable confusion in their ammunition supply. The want of ammunition columns was seriously felt. Guns had to stand silent both at Spion's Kop and Pieter's Hill because they had fired away their supplies. Ammunition was brought up by ox waggons and was then supposed to be carried to the guns by special men told off for this purpose. As a matter of fact when the British fire became at all heavy these men simply did not attempt to carry out this duty. The writer states that the Boers feared shrapnell fire much more than the fire of percussion shell,

even high explosive shell. General Von Reichenan combats the author's conclusions in this respect, claiming that percussion shell, as instanced by the case of the "pom-poms," must have greater moral effect than shrapnell.

The horses in South Africa being little used for draught purposes, for which oxen and mules are almost entirely used, the question of remounts for the Boer artillery very early became a difficult question. The horses of the regular artillery also not having been accustomed to graze like the rest of the Boer animals very soon succumbed under the conditions of the war and had to be replaced by mules. The writer says that the big mules were hardy good animals but their cost in South Africa is greater than that of horses. The mules could not be driven very rapidly, and were very liable to stampede when under fire. For this reason guns often had to be withdrawn from action because it would have been unsafe to have waited till the last moment.

Number 116 gives an account of Gibraltar and proposes a scheme for its attack. The author considers that this fortress, owing to the long range of modern artillery, rendering bombardment from the neighbourhood of Algeciras possible in support of the main land attack from the north, has in consequence lost much of its old value as a point of support to a fleet.

Militär Literatur Zeitung.—(August to October).

The August and September numbers contain a sketch of the principal French Military literature published during 1902. The October number deals similarly with the Austrian literature of the same year.

The following books are very favourably criticized :—

Der Krieg und das Geld by Oberstleutnant Hans Hellmar, Metz.—No price given.

Politische Geographie oder die Geographie der Staaten, des Verkehrs, und des Krieges by Dr. Friedrich Ratzel. R. Oldenburg Berlin. (8 marks.)

H. W. R. SENIOR, *Captain.*

The Enno Sander Prize.

The Essayist securing First Place will receive

A GOLD MEDAL

of the value of

One Hundred Dollars

The Essayist securing Second Place will receive

A LIFE MEMBERSHIP

IN THE ASSOCIATION,

of the value of

Fifty Dollars.

SUBJECT OF THE COMPETITION FOR 1904.

**THE RELATION OF THE MEDICAL DEPARTMENT TO
THE HEALTH OF ARMIES.**

CONDITIONS OF THE COMPETITION.

1. Competition is open to all persons eligible to Active or Associate Membership in the Association of Military Surgeons of the United States.*

2. The prize will be awarded upon the recommendation of a Board of Award selected by the Executive Committee. The Board will determine upon the essay to which the prize shall be awarded, and will also recommend such of the other papers submitted, as it may fit for honourable mention, the author of the first of which shall receive a life membership in the Association.

3. In fixing the precedence of the essays submitted, the Board will take into consideration—primarily—originality, comprehensiveness and the practicability and utility of the opinions advanced, and—secondarily— literary character.

4. Essays will consist of not less than ten thousand, nor more than twelve thousand words, exclusive of tables.

5. Each competitor will send three typewritten copies of his essay in a sealed envelope to the Secretary of the Association, so as to reach that officer *at least one month before the next ensuing annual meeting*, in the present case on or before September 10, 1904.

6. The essay shall contain nothing to indicate the identity of the author. Each one however will be authenticated by a nom de plume, a copy of which shall, at the same time as the essay, be transmitted to the Secretary in a sealed envelope together with the author's name, rank and address.

7. The envelope containing the name of the successful competitor will be publicly opened at the next succeeding annual meeting of the Association, and the prize thereupon awarded.

8. The successful essay becomes the property of the Association of Military Surgeons of the United States, and will appear in its publications.

BOARD OF AWARD—1904.

Lieutenant-Colonel JOHN SHAW BILLINGS, U. S. Army.

Brevet-Brigadier-General GEORGE RYERSON FOWLER, New York.

Surgeon HENRY GUSTAV BEYER, U. S. Navy.

John Cropper Wise, President. James Evelyn Pilcher, Secretary,
CARLISLE, PENNSYLVANIA.

* Military and Naval Medical Officers of the British Services Eligible.

NOTICE.

The sum of Rs. 1,500, allotted by the Council of the United Service Institution of India, as premia for articles contributed to the Journal during 1903, was distributed between the undermentioned officers :—

Colonel F. M. Rundall, D.S O., I.A.

Lieut.-Colonel C. C. Manifold, I.M.S.

Lieut.-Colonel H. G. Hathaway, R.A.M.C.

Major W. G. Hamilton, D.S.O., Norfolk Regiment.

Major W. Kirkpatrick, D.S.O., I.A.

Major R. G. Burton, I.A.

Historicus.

Captain W. B. James, I.A.

Captain J. M. Home, I.A.

Captain H. W R. Senior, I.A.

Captain J. M. Wikeley, I.A.

Captain H. H. Norman, Northamptonshire Regiment.

Captain C. W. Battine, 15th Hussars.

Captain A I. R. Glasfurd, I.A.

E. C. A.

Lieutenant G. H. Sawyer, I.A.

Lieutenant R. F. W. Ashworth, 5th Dragoon Guards.

UNITED SERVICE INSTITUTION OF INDIA.

NOTICE.

It is notified for information that the annual award of premia for articles contributed to the Journal has been increased to Rs. 1,500.

The Council will be glad to receive, and consider for publication in the Journal, papers on the following subjects, and any others of military interest :—

1. The tactical employment of Field Artillery and Mountain Artillery with Infantry.
2. The rôle of Infantry in defence of coast fortresses and defended ports.
3. Comparative study of systems of military administration of three great Powers as compared with our own in India.
4. The consideration of the equipment (excluding arms and ammunition), baggage, food and shelter, necessary for men and horses in war under varying conditions, with a view to maintaining their health and efficiency and reducing unnecessary impedimenta.
5. The value in the Field of a highly mobile force specially organised with a view to distant raids, its training, organisation and equipment.

By order of the Council,

T. E. SCOTT, *Major,*

Secretary, United Service Institution of India,

Simla.

United Service Institution of India.

Prize Essay Gold Medallists.

1872.....ROBERTS, Lieut.-Col. F. S., V.C., C.B., R.A.

1873.....COLQUHOUN, Capt. J. A. S., R.A.

1874.....COLQUHOUN, Capt. J. A. S., R.A.

1879.....ST. JOHN, Maj. O. B. C., R.E.

1880.....BARROW, Lieut. E. G., 7th Bengal Infantry.

1882.....MASON, Lieut. A. H., R.E.

1883.....COLLEN, Maj. E. H. H., S.C.

1884.....BARROW, Capt. E. G., 7th Bengal Infantry.

1887.....YATE, Lieut. A. C., 27th Baluch Infantry.

1888.....MAUDE, Capt. F. N., R.E.

YOUNG, Maj. G. F., 24th P. I. (specially awarded a silver medal).

1889.....DUFF, Capt. B., 9th Bengal Infantry.

1890.....MAGUIRE, Capt. C. M., 2nd Cav., Hyderabad Contingent.

1891.....CARDEW, Lieut. F. G., 10th Bengal Lancers.

1893.....BULLOCK, Maj. G. M., Devonshire Regt.

1894.....CARTER, Capt. F. C., Northumberland Fusiliers.

1895.....NEVILLE, Lieut.-Col. J. P. C., 14th Bengal Lancers.

1896.....BINGLEY, Capt. A. H., 7th Bengal Infantry.

1897.....NAPIER, Capt. G. S. F., Oxfordshire L. I.

1898.....MULLALY, Maj. H., R.E.

CLAY, Capt. C. H., 43rd Gurkha Rifles (specially awarded a silver medal).

1899.....NEVILLE, Col. J. P. C., S.C.

1900.....THUILLIER, Capt. H. F., R.E.

LUBBOCK, Capt. G., R.E. (specially awarded a silver medal).

1901.....RANKEN, Lieut.-Col. G. P., 46th Punjab Infantry.

1902.....TURNER, Capt. H. H. F., 2nd Bengal Lancers.

1903.....HAMILTON, Maj. W. G., D.S.O., Norfolk Regt.

BOND, Capt. R. F. G., R.E. (specially awarded a silver medal).

MacGregor Memorial Silver Medallists.

- 1889.....BELL, Col. M. S., V.C., R.E. (specially awarded a gold medal).
- 1890YOUNGHUSBAND, Capt. F. E., K. Dn. Gds.
- 1891.....SAWYER, Maj. H. A., 45th Sikhs.
RAMZAN KHAN, Havildar, 3rd Sikhs.
- 1892.....VAUGHAN, Capt. H. B., 7th Bengal Infantry.
JAGGAT SINGH, Havildar, 19th P. I.
- 1893BOWER, Capt. H., 17th Bengal Cavalry (specially awarded a gold medal).
FAZALDAD KHAN, Dafadar, 17th B. C.
- 1894.....O'SULLIVAN, Maj. G. H. W., R.E.
MULL SINGH, Sowar, 6th B. C.
- 1895.....DAVIES, Capt. H. R., Oxfordshire L. I.
GUNGA DYAL SINGH, Havildar, 2nd Rajputs.
- 1896.....COCKERILL, Lieut. G. K., 28th Punjab Infantry.
GHULAM NABI, Private, Q. O. Corps of Guides.
- 1897.....SWAYNE, Capt. E. J. E., 16th Rajput Infantry.
SHAHZAD MIR, Dafadar, 11th B. L.
- 1898.....WALKER, Capt. H. B., Duke of Cornwall's L. I.
ADAM KHAN, Havildar, Guides Infantry.
- 1899.....DOUGLAS, Capt. J. A., 2nd B. L.
MIHR DIN, Naik, Bengal S. and M.
- 1900.....WINGATE, Capt. A. W. S., 14th B. L.
GURDIT SINGH, Havildar, 45th Sikhs.
- 1901.....BURTON, Major E. B., 17th B. L.
SUNDER SINGH, Colr. Havildar, 31st Burma Infantry.
- 1902.....RAY, CAPTAIN M., R.E., 7th Rajput Infantry.
TILBIR BHANDARI, HAVILDAR, 9th Gurkha Rifles.
- 1903.....MANIFOLD, Lieut.-Col. C. C., I.M.S.
GHULAM HUSSAIN, Dafadar, Guides Infantry.

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NEUTRALS : THEIR RIGHTS AND DUTIES IN TIME OF WAR.

BY MAJOR A. J. CARUANA, 41ST DOGRAS.

At a time when two great civilised powers are actually at war and questions as to the rights and duties of neutrals are arising daily, a few notes on these rights and duties may prove interesting to readers of this Journal.

The statements of law and usage given in this article are chiefly taken from such authorities on International Law as Wheaton and Hall.

The state of Neutrality.

Neutrality at one time had no existence. If hostilities broke out between two States, every other was an ally or an enemy ; as, according to the laws of war, observed even by the most civilised nations of antiquity, the right of one nation to remain at peace, whilst other neighbouring nations were engaged in war, was not admitted to exist. Little by little, however, a third attitude became recognised as possible and legitimate ; and its maintenance has gradually been transformed into a duty by the jealousy of belligerents, whose anxiety to deprive their enemy of advantages which the preference of the neutrals might give to him, has been helped by the equal anxiety of neutrals to continue their habits of trade and intercourse. A code of rules has therefore grown up affecting States in their new relations, which, in part, is the accidental result of the immediate collision of interests of various strength, in part is a fair deduction from the principles of the law governing States in their normal relations, and in part represents a compromise between conflicting deductions from those principles and from the rights which belligerents are conceived to possess as against their enemies.

It may, however, be remarked at the outset that whilst in every State there is always a legislative power which establishes, by express declaration, the civil law of that State, and a judicial power which interprets that law and applies it to individual cases, in the great society of nations, there is no legislative power and consequently there are no express laws, except those which result from the conventions which States may make with one another. Therefore as nations acknowledge no superior, as they have not organised any common paramount authority for the purpose of establishing, by an express declaration, their international law, and as they have not constituted any international magistracy for the purpose of interpreting and applying that law, it is impossible that there should be a code of international law equally binding on all States. Hence it follows that the rules of international law which have the sanction of general usage only, and which are not the result of special conventions, may be disregarded at will by those who choose to declare themselves absolved from the obligations of that code, though they do so at the risk of retaliation from the party specially injured by its violation, or at that of incurring the general hostility of mankind.

Different species of Neutrality.

There are two species of neutrality recognised in international law. These are :—Natural neutrality and conventional neutrality.

Natural neutrality is that which every sovereign State has a right, independent of positive compact, to observe in respect to the wars in which other States may be engaged. The right of every independent State to remain at peace, whilst other States are engaged in war, is, as we have seen, now recognised as an incontestable attribute of sovereignty. It is, however, obviously impossible that neutral nations should be wholly unaffected by the existence of war between those communities with whom they continue to maintain their accustomed relations of friendship and commerce. The rights of neutrality are thus connected with corresponding duties, the chief of which is that of impartiality between the contending parties. Every people possessing sovereignty has the right of determining what kind and amount of intercourse it will maintain with foreign nations, and it may choose to mark one out as an object of greater friendship than another. In time of peace it is easy to accord such preference, and to remain, nevertheless, on terms of perfect amity with less favoured countries. But during war, privileges tending to strengthen the hands of one of two belligerents help him towards the destruction of his enemy. To grant them is not merely to show less friendship to one than the other; it is to embarrass one by reserving to the other a field of action in which his enemy cannot attack him; it is to assume an attitude with respect to him of at least passive hostility. If therefore a people desires not to be the enemy of either belligerent, its amity must be colourless in the eyes of both; in its corporate capacity as a State it must abstain altogether from mixing itself up in their quarrel. Further than this, a neutral State is not merely itself bound to refrain from

helping either of the two belligerents, but it is also bound to take care, to a reasonable extent, that neither one nor the other shall be prejudiced by acts over which it is supposed to have control, such as the hostile acts of subjects or of aliens openly done within its territory. On the other hand, no government can exercise an inquisitorial surveillance over all the doings of persons living within its jurisdiction, and there is a point at which the responsibility of a State ceases in respect of concealed acts done within its territory. The true theory is that the neutral sovereign has only to do with such overt acts as are performed within his own territory, and to them he can only apply the test of their immediate quality; if these are such in themselves as to violate neutrality, or to raise a violent presumption of fraud, he steps in to prevent their consequences; but if they are presumably innocent, he is not justified in interfering with them.

Conventional neutrality is that which is modified by special compact. The public law of Europe affords several examples of this species of neutrality. Thus, at the Declaration of Paris, 1815, Great Britain, Austria, Russia, Prussia and France formally recognised the perpetual neutrality of Switzerland, on the ground that her neutrality, inviolability, and independence of all foreign influence were conformable to the true interests of the policy of all Europe. Similarly, in 1831, the five great European powers guaranteed the perpetual neutrality of Belgium, such neutrality being made an essential condition of the recognition of her independence in the treaties for the separation of that country from Holland. Other instances of this species of neutrality are that of Cracow (Congress of Vienna, 1815), Luxemburg (Treaty of London, 1867), and Corfu and Paxos (Treaty with Greece, 1864). But the conventional neutrality thus created differs essentially from that natural or perfect neutrality which every State has a right to observe, independent of special compact, in respect to the wars in which other States may be engaged. The consequences of the latter species of neutrality only arise in case of hostilities: it does not exist in time of peace, during which the State is at liberty to contract any eventual engagements it thinks fit as to political relations with other States. A permanent neutral State, on the other hand, by accepting this condition of its political existence, is bound to avoid in time of peace every engagement which might prevent its observing the duties of neutrality in time of war. As an independent State it may lawfully exercise, in its intercourse with other States, all the attributes of external sovereignty. It may form treaties of amity, and even of alliance with other States; provided it does not thereby incur obligations which, though perfectly lawful in time of peace, would prevent its fulfilling the duties of neutrality in time of war. Under this distinction, treaties of offensive alliance, applicable to a specific case of war between any two or more powers, or guaranteeing their possessions, are of course interdicted to the permanently neutral State. But this interdiction does not extend to defensive alliances formed with other neutral States for the maintenance of the neutrality of the contracting parties against any power by which it might be threatened with violation.

Neutrality may also be modified by antecedent engagements, by which the neutral is bound to one of the parties to the war. Thus, the neutral may be bound by treaty, previous to the war, to furnish one of the belligerent parties with a limited succour in money, troops, ships, or munitions of war, or to open his ports unconditionally to the armed vessels of his ally, the fulfilment of such an obligation, it has been held, does not necessarily forfeit his neutral character, nor render him the enemy of the other belligerent nation, but, as Sir R. Phillimore observes "a State has no right to stipulate, in time of peace, that when the time of war arrives it will do the act of a belligerent and yet claim the immunity of a neutral." The more modern text-writers incline to this view, and this seems to be the better opinion.

Hostilities within the territory of the neutral State.

The rights of war can be exercised only within the territory of the belligerent powers, upon the high seas, or in a territory belonging to no one. Hence it follows that hostilities cannot lawfully be exercised within the territorial jurisdiction of a neutral State; and within the limits of this territorial jurisdiction are included ports, harbours, bays and mouths of rivers belonging to the State: also, by the general usage of nations, a distance of a marine league, measured from low-water mark, along all the coasts of the State. Not only are all captures made by belligerent vessels within the limits of this jurisdiction absolutely null and void, but captures made without those limits by armed vessels stationed in a bay or river, or in the mouth of a river, or in the harbour of a neutral State, for the purpose of exercising the rights of war from this station, are also invalid. And where a capture of enemy's property is made within neutral territory, or by armaments unlawfully fitted out within the same, it is the right as well as the duty of the neutral State, where the State has the power to enforce its right and to fulfil its duty, to restore it to the original owners. But it must be remembered that though hostilities cannot lawfully be exercised within the territorial jurisdiction of a neutral State, it is a rule of the Prize Courts, in the case of a capture, that restoration to the individual claimant can only be made on the application of the neutral government whose territory has been thus violated. This rule is founded upon the principle that the neutral State alone has been injured by the capture, and that the hostile claimant has no right to appear for the purpose of suggesting the invalidity of such capture. Similarly, it is a rule of international law that a belligerent who, when attacked in neutral territory, elects to defend himself instead of trusting for protection or redress to his host, himself violates the sovereignty of the neutral, and by such violation frees the neutral from responsibility. The belligerent who considers himself injured in these circumstances, by the enemy attacking him within the territorial jurisdiction of a neutral State, has not himself, nor has anyone else on his behalf, either the right or cause to complain.

The exemption above referred to extends also to the passage of an army or fleet through the limits of the territorial jurisdiction,

which can hardly be considered an innocent passage such as one nation has a right to demand from another; and, even if it were such an innocent passage, it is one of those imperfect rights, the exercise of which depends upon the consent of the proprietor and which cannot be compelled against his will. Thus, though the Black Sea is not a *mare clausum* and is open to the commerce of all nations, the right of the territorial jurisdiction which Turkey exercises over the Dardanelles and the Bosphorus is not interfered with. Those straits are bounded on both sides by the territory of the Sultan and are, in most parts, less than six miles wide; consequently he has a right to exclude all foreign ships of war from entering or passing either of them. This right which is exercised by the Sultan of Turkey has been recognised in the Treaties of London, 1841, and of Paris, 1856, and, also, though in a somewhat modified form, in the Treaty of London, 1871.

An exception arises in the case of the Suez Canal, the neutrality of which has been guaranteed by the International Convention of 1888. The effect of that convention is to open the Canal in time of war as in time of peace to every vessel of commerce or of war, without distinction of flag, and to free it from the exercise of the right of blockade. But in time of war the Canal, as respects the ships of belligerents, is in a position analogous to that of a neutral port, even though Turkey (the territorial power) should be one of the belligerents. Where they are not in conflict with the rules of neutrality adopted by the Convention, the rights of Turkey as the territorial power are reserved.

Admission of belligerent vessels into neutral ports.

The reception or exclusion of belligerent vessels of war in neutral ports is a matter entirely at the discretion of the neutral government. An opinion has been expressed by some text-writers, that belligerent vessels not only are entitled to seek an asylum and hospitality in neutral ports, but have a right to bring in and sell their prizes within those ports. But there seems to be nothing in the established principles of public law which can prevent the neutral State from withholding the exercise of this privilege impartially from all the belligerent powers; or even from granting it to one of them and refusing it to others, where stipulated by treaties existing previous to the war. The usage of nations, as testified in their marine ordinances, sufficiently shows that this is a rightful exercise of the sovereign authority which every State possesses, to regulate the laws and rules of its own sea-ports and to preserve the public peace within its own territory. But the absence of a positive prohibition, implies a permission to enter the neutral ports for these purposes. It would seem, however, that positive prohibitions are now the rule as regards the entry of war vessels with their prizes into neutral ports for any purpose whatsoever. Without their prizes, where there are no prohibitions or conditions of entry, belligerent war vessels are entitled to expect all the ordinary hospitalities of a friendly port; and a neutral is not required by the law of nations to make any such prohibitory or conditional rules, or to place any restrictions upon the liberty which it accords of purchasing

provisions, coal, and other supplies (not being arms or munitions of war). It is not a positive rule of international law that the supplies purchased must be limited to any particular quantity, or that the stay of a belligerent vessel of war in a neutral port must be limited to a specified time. So long as the neutral supplies and treats both parties equally, neither has any right to complain.

In practice, however, on the outbreak of a maritime war, neutral States generally make some rules on this subject. The rules made by England during the American Civil War were followed with slight, if any, alterations during the Franco-German war, 1870-71, during the Russo-Turkish war, 1877-78, again during the Spanish-American war, 1898, and are now again being enforced during the existence of hostilities between Russia and Japan. It may be convenient to give them here in full, as they show what the established practice of England is in this respect:

"His Majesty being fully determined to observe the duties of neutrality during the existing state of war between Russia and Japan, and being, moreover, resolved to prevent, as far as possible, the use of His Majesty's harbours, ports, and coasts and the waters within His Majesty's territorial jurisdiction in aid of the warlike purposes of either belligerent, has commanded me* to communicate to you† for your guidance, the following rules which are to be treated and enforced as His Majesty's orders and directions:—

Rule I.—During the continuance of the present state of war, all ships of war of either belligerent are prohibited from making use of any port or roadstead in the United Kingdom, the Isle of Man, the Channel Islands, or in any of His Majesty's Colonies or Foreign possessions or dependencies, or of any waters subject to the territorial jurisdiction of the British Crown, as a station or place of resort for any warlike purpose, or for the purpose of obtaining any facilities for warlike equipment. And no ship of war of either belligerent shall hereafter be permitted to leave any such port, roadstead, or waters from which any vessel of the other belligerent (whether the same shall be a ship of war, or a merchant ship) shall have previously departed, until after the expiration of at least twenty-four hours from the departure of such last-mentioned vessel, beyond the territorial jurisdiction of His Majesty.

Rule II.—If there is now in any such port, roadstead, or waters, subject to the territorial jurisdiction of the British Crown, any ship of war of either belligerent, such ship of war shall leave such port, roadstead, or waters within such time, not less than twenty-four hours, as shall be reasonable, having regard to all circumstances and the condition of such ship as to repairs, provisions, or things necessary for the subsistence of her crew. And, if after the date hereof any ship of war of either belligerent shall enter any such port, roadstead, or waters, subject to the territorial jurisdiction of the British Crown, such ship shall depart

* Secretary of State for Foreign Affairs.

† Secretary of State for India.

and put to sea within twenty-four hours after her entrance into any such port, roadstead, or waters, except in case of stress of weather, or of her requiring provisions or things necessary for the subsistence of her crew, or repairs, in either of which cases, the authorities of the port, or of the nearest port, (as the case may be), shall require her to put to sea as soon as possible after the expiration of such period of twenty-four hours, without permitting her to take in supplies beyond what may be necessary for her immediate use, and no such vessel, which may have been allowed to remain within British waters for the purpose of repair, shall continue in any such port, roadstead, or waters, for a longer period than twenty-four hours after her necessary repairs shall have been completed. Provided, nevertheless, that, in all cases in which there shall be any vessels (whether ships of war or merchant ships) of both the said belligerent parties in the same port, roadstead, or waters within the territorial jurisdiction of His Majesty, there shall be an interval of not less than twenty-four hours between the departure therefrom of any such vessel (whether a ship of war or a merchant man) of the one belligerent, and the subsequent departure therefrom of any ship of war of the other belligerent. And the time hereby limited for the departure of such ships of war respectively, shall always in case of necessity be extended so far as may be requisite for giving effect to this proviso, but no further or otherwise.

Rule III.—No ship of war of either belligerent shall hereafter be permitted, while in any port, roadstead, or waters, subject to the territorial jurisdiction of His Majesty, to take in any supplies except provisions and such other things as may be requisite for the subsistence of her crew, and except so much coal only as may be sufficient to carry such vessel to the nearest port of her own country, or to some nearer named neutral destination; and no coal shall be again supplied any such ship of war in the same or any other port, roadstead, or waters, subject to the territorial jurisdiction of His Majesty, without special permission, until after the expiration of three months from the time when such coal may have been last supplied to her within British waters as aforesaid.

Rule IV.—Armed ships of either belligerent are interdicted from carrying prizes made by them into the ports, harbours, roadsteads, or waters of the United Kingdom, the Isle of Man, the Channel Islands, or any of His Majesty's colonies or possessions abroad.

The Governor or other chief authority of each of His Majesty's territories or possessions beyond the seas shall forthwith notify and publish the above rules."*

* Foreign Department Notification No. 513-E. B., Gazette of India Extraordinary, 13th February 1904.

The above restrictions, it will be observed, do not apply to the merchant vessels of either belligerent entering a British port. To such vessels are extended the ordinary hospitalities of a friendly port as in time of peace.

The practice of other powers in this respect has not always been as set forth above for Great Britain, and there is no uniform practice established; but the rule that when two hostile ships of war meet in a neutral port, the local authorities are to detain one till twenty-four hours after the departure of the other, is very general in practice. It is a very reasonable rule, and with the universal use of steam on ships of war, the limit of twenty-four hours gives ample time for the vessel that starts first to get out of the reach of the other, if desirous of doing so.

The British rules, it may have been noticed, allow a belligerent ship of war to enter a British port for repairs, and so do the rules of most nations. This constitutes a real exception to the rule that neutrals may not assist belligerent ships of war in carrying on their warlike operations. Although such ships may not purchase arms or ammunition, or recruit men, in the neutral port, yet they may be repaired in it to an extent sufficient to render them navigable and seaworthy. This is in reality assisting the belligerent; for the ship in fact refits herself for war by repairing her engines, quite as much as by repairing, say, her gun carriages; but she is allowed to do the one and not the other. The reason for allowing her to be repaired seems to be that unless this were allowed, she might be unable to leave the neutral port at all. The question of partiality does not, of course, arise, so long as the privilege is granted equally to either belligerent.

The supply of ships and munitions of war to belligerents.

The duties of neutral States as regards their supplying belligerents with ships and munitions of war, have been much discussed and have been brought into much prominence in recent times. It is fully recognised that a vessel completely armed, and in every respect fitted, the moment it receives its crew, to act as a man-of-war, is a proper subject of commerce. There is nothing to prevent its neutral possessor from selling it and undertaking to deliver it to the belligerent either in the neutral port or in that of the purchaser, subject to the right of the other belligerent to seize it as contraband if he meets it on the high seas or within his enemy's waters. "There is nothing," says Mr. Justice Story, "in the law of nations, that forbids our citizens from sending armed vessels as well as munitions of war to foreign ports for sale. It is a commercial adventure which no nation is bound to prohibit." If the neutral may sell his vessel when built, he may build it to order; and it must be permissible, as between the belligerent and the neutral State, to give the order, which it is permissible to execute. It would appear therefore, arguing from general principles alone, that a vessel of war may be built, armed, and furnished with a minimum navigating crew, and that in this state, provided it has not received a commission, it may clear from a neutral harbour on a confessed voyage to a belligerent port, without any infraction of neutrality having been committed. The question remains, Is there a

special usage with respect to the building and fitting out of ships, which abridges the common law privileges of neutrals?

A comparison of international custom with the logical results of the unquestioned principles of neutrality seems to lead to the following conclusions :—

1. That an international usage prohibiting the construction and outfit of vessels of war, in the strict sense of the term, is in course of growth, but that although it is adopted by the most important maritime powers, it is not yet old enough, or quite wide enough, to have become compulsory on those nations which have not yet signified their voluntary adherence to it.
2. That in the meantime a ship of war may be built and armed to the order of a belligerent, and delivered to him outside neutral territory ready to receive a fighting crew; or it may be delivered to him within such territory, and may issue as belligerent property, if it is neither commissioned nor so manned as to be able to commit immediate hostilities, and if there is not good reason to believe that an intention exists of making such fraudulent use of the neutral territory as has been before indicated.

As regards England her common law privileges are abridged by the Treaty of Washington, 1871, and by the Foreign Enlistment Act, 1870.

By Article VI of the Treaty of Washington, 1871, between Great Britain and the United States, the High Contracting Parties agreed to observe the following rules as between themselves in future, and to bring them to the knowledge of other maritime powers, and to invite them to accede to them. A neutral government was declared to be bound :—

- 1st.—To use due diligence to prevent the fitting out, arming, or equipping within its jurisdiction, of any vessel which it has reasonable ground to believe is intended to cruise or to carry on war against a power with which it is at peace; and also to use like diligence to prevent the departure from its jurisdiction of any vessel intended to cruise or carry on war as above, such vessel having been specially adapted in whole, or in part, within such jurisdiction, to warlike use.
- 2nd.—Not to permit or suffer either belligerent to make use of its ports or waters as the base of naval operations against the other, or for the purpose of the renewal or augmentation of military supplies or arms, or the recruitment of men.
- 3rd.—To exercise due diligence in its own ports and waters, and, as to all persons within its jurisdiction, to prevent any violation of the foregoing obligations and duties.

Owing to a difference of opinion between the two countries as to the interpretation of the rules, foreign States have not been invited to accede to them, and it is useless to speculate as to the effect which

might be given to the provisions of the treaty during **any future war** in which either Great Britain, or the United States, is a **belligerent**, the other of the two being neutral.

By the Foreign Enlistment Act, 1870 (33 & 34 Vict., c. 90), it is an offence to build or cause to be built, or to equip or despatch, or to cause or allow to be despatched, any ship, with intent or knowledge, or having reasonable cause to believe that the same will be employed in the service of any foreign State at war with any friendly State.

The Act goes far beyond what international law requires. It creates a new crime—that of building—and makes British subjects liable to penalties for acts which are lawful by the law of nations, and by all other municipal laws. It places the ship building trade of Great Britain at a disadvantage, as compared with that of the rest of the world. These results were foreseen, as the Royal Commission appointed in 1868 to enquire into the working of the Foreign Enlistment Act, 1819, which was superseded by the Act of 1870, added in their report, "In making the foregoing recommendations, we have not felt ourselves bound to consider whether we were exceeding what would actually be required by international law, but we are of opinion that if those recommendations should be adopted, the municipal law of this realm available for the enforcement of neutrality will derive increased efficiency, and will, so far as we can see, have been brought into full conformity with your Majesty's international obligations."

Immunity of the neutral territory: How far it extends to neutral vessels on the high seas.

The unlawfulness of belligerent captures made within the territorial jurisdiction of a neutral State is incontestably established on principle, usage, and authority. But this immunity of the neutral territory does not extend to the vessels of the nation on the high seas, and without the jurisdiction of any other State.

A distinction must, however, be made between the public and the private vessels of a nation. In respect to its public vessels, which are considered to form part of its territory, it is universally admitted that neither the right of visitation and search, of capture, nor any other belligerent right, can be exercised on board such a vessel on the high seas. A public vessel belonging to an independent sovereign is exempt from every species of visitation and search, even within the territorial jurisdiction of another State; *a fortiori* must it be exempt from the exercise of belligerent rights on the ocean, which belongs exclusively to no one nation.

In respect to private vessels the case is different. Though according to some writers such ships also are floating portions of the country upon which they depend, they form in reality no part of the neutral territory. The jurisdiction exercised by a State over its merchant vessels upon the ocean is one which is conceded to it in virtue of its ownership of them as property in a place where no local jurisdiction exists; not because they are, by a fiction of law, considered to be a continuation of the territory of the State under whose flag they sail.

Besides, it is well established that when within the territorial jurisdiction of another State, they are not exempt from the local jurisdiction. In this view, it has been held that the right of visitation and search, of capture, and any other belligerent right, may be exercised on the private vessels of a neutral State on the high seas, as much as within the territory of the enemy, or in a place belonging to no one.

Whatever may be the true original abstract principle of natural law on this subject, it is undeniable that the constant usage and practice of belligerent nations, from the earliest times, have subjected enemy's goods in neutral vessels to capture and condemnation as prize of war. This constant and universal usage has only been interrupted by treaty stipulations, forming a temporary conventional law between the parties to such stipulations. On the other hand the converse rule, which subjects to confiscation the goods of a friend on board the vessels of an enemy—though it has at times been incorporated into the prize codes of certain nations—is manifestly contrary to both reason and justice.

No branch of international law has been debated at such length, or with greater keenness, than that which refers to belligerent goods carried in neutral vessels, and to neutral goods carried in enemy's vessels. But the controversy was brought to a close in 1856 by the Declaration of Paris, to which all the powers but the United States acceded, and which provides as follows:—

Art. 2.—The neutral flag covers enemy's goods with the exception of contraband of war.

Art. 3.—Neutral goods, with the exception of contraband of war, are not liable to capture under the enemy's flag."

This Declaration was a great step in favour of neutrals, and curtailed the rights of belligerents. But it does not entirely free neutral commerce from the effects of war. The belligerent right of search may still be exercised, both for the purpose of ascertaining the true character of a ship sailing under a neutral flag and to discover whether she carries any contraband.

It has already been said that the United States are not a party to this Declaration and are therefore not bound by it; nevertheless during the Civil War, these two rules were observed by both parties. It is probable therefore that the Declaration has permanently secured an identical practice among all the maritime powers.

Contraband of war.

The general freedom of neutral commerce with the respective belligerent powers, is subject to certain exceptions. Among these is the trade with the enemy in certain articles called contraband of war. At no time, however, has opinion been unanimous as to what articles ought to be ranked as being of this nature, and no distinct and binding usage has hitherto been formed, except with regard to a very restricted class. Hugo Grotius, the founder of the science of international law, writing in 1625, made a distinction between those things which are useful only for the purposes of war, those which are not so, and those which are susceptible of indiscriminate use in peace and in war. The first he agrees with all other text-writers in prohibiting

It may, however, be remarked at the outset that whilst in every State there is always a legislative power which establishes, by express declaration, the civil law of that State, and a judicial power which interprets that law and applies it to individual cases, in the great society of nations there is no legislative power, and consequently there are no express laws, except those which result from the conventions which States may make with one another. Therefore as nations acknowledge no superior, as they have not organised any common para-national authority for the purpose of establishing, by an express declaration, their international law, and as they have not constituted any para-national magistracy for the purpose of interpreting and applying that law, it is impossible that there should be a code of international law equally binding on all States. Hence it follows that the rules of international law which have the sanction of general usage, and which are not the result of special conventions, may be declared at will by those who choose to declare themselves absolute and exclusive obligations of that code, though they do so at the risk of retaliation from the party specially injured by its violation, or at that of incurring the general hostility of mankind.

Different species of Neutrality.

There are two species of neutrality recognised in international law. These are—Natural neutrality and conventional neutrality.

Natural neutrality is that which every sovereign State has a right, independent of positive compact, to observe in respect to wars in which other States may be engaged. The right of every independent State to remain at peace, whilst other States are engaged in war, is, as we have seen, now recognised as an inalienable attribute of sovereignty. It is, however, obviously impossible that neutral nations should be wholly unaffected by the existence of war between those communities with whom they continue to maintain their accustomed relations of friendship and commerce. The rights of neutrality are thus connected with corresponding duties, the chief of which is that of impartiality between the contending parties. Every people possessing sovereignty has the right of determining what kind and amount of intercourse it will maintain with foreign nations, and it may choose to make one out as an object of greater friendship than another. In time of peace it is easy to accord such preference, and to remain, nevertheless, on terms of perfect amity with less favoured countries. But during war, privileges tending to strengthen the hands of one of two belligerents help him towards the destruction of his enemy. To grant them is not merely to show less friendship to one than the other; it is to embarrass one by reserving to the other a field of action in which his enemy cannot attack him; it is to assume an attitude with respect to him of at least passive hostility. If therefore a people desires not to be the enemy of either belligerent, its amity must be clearly a the eyes of both; in its corporate capacity as a State it must abstain altogether from mixing itself up in their quarrel. Further than this, a neutral State is not merely itself bound to remain free

helping either of the two belligerents, but it is also bound to take care, to a reasonable extent, that neither one nor the other shall be prejudiced by acts over which it is supposed to have control, such as the hostile acts of subjects or of aliens openly done within its territory. On the other hand, no government can exercise an inquisitorial surveillance over all the doings of persons living within its jurisdiction, and there is a point at which the responsibility of a State ceases in respect of concealed acts done within its territory. The true theory is that the neutral sovereign has only to do with such overt acts as are performed within his own territory, and to them he can only apply the test of their immediate quality; if these are such in themselves as to violate neutrality, or to raise a violent presumption of fraud, he steps in to prevent their consequences; but if they are presumably innocent, he is not justified in interfering with them.

Conventional neutrality is that which is modified by special compact. The public law of Europe affords several examples of this species of neutrality. Thus, at the Declaration of Paris, 1815, Great Britain, Austria, Russia, Prussia and France formally recognised the perpetual neutrality of Switzerland, on the ground that her neutrality, inviolability, and independence of all foreign influence were conformable to the true interests of the policy of all Europe. Similarly, in 1831, the five great European powers guaranteed the perpetual neutrality of Belgium, such neutrality being made an essential condition of the recognition of her independence in the treaties for the separation of that country from Holland. Other instances of this species of neutrality are that of Cracow (Congress of Vienna, 1815), Luxemburg (Treaty of London, 1867), and Corfu and Paxo (Treaty with Greece, 1864). But the conventional neutrality thus created differs essentially from that natural or perfect neutrality which every State has a right to observe, independent of special compact, in respect to the wars in which other States may be engaged. The consequences of the latter species of neutrality only arise in case of hostilities: it does not exist in time of peace, during which the State is at liberty to contract any eventual engagements it thinks fit as to political relations with other States. A permanent neutral State, on the other hand, by accepting this condition of its political existence, is bound to avoid in time of peace every engagement which might prevent its observing the duties of neutrality in time of war. As an independent State it may lawfully exercise, in its intercourse with other States, all the attributes of external sovereignty. It may form treaties of amity, and even of alliance with other States; provided it does not thereby incur obligations which, though perfectly lawful in time of peace, would prevent its fulfilling the duties of neutrality in time of war. Under this distinction, treaties of offensive alliance, applicable to a specific case of war between any two or more powers, or guaranteeing their possessions, are of course interdicted to the permanently neutral State. But this interdiction does not extend to defensive alliances formed with other neutral States for the maintenance of the neutrality of the contracting parties against any power by which it might be threatened with violation.

Neutrality may also be modified by antecedent engagements by which the neutral is bound to one of the parties to the war. Thus the neutral may be bound by treaty, previous to the war, to furnish one of the belligerent parties with a limited succour in money, troops, ships, or munitions of war, or to open his ports unconditionally to the armed vessels of his ally, the fulfilment of such an obligation has been held, does not necessarily forfeit his neutral character, nor render him the enemy of the other belligerent nation, but, as Sir John Phillimore observes "a State has no right to stipulate, in time of peace, that when the time of war arrives it will do the act of a belligerent and yet claim the immunity of a neutral." The more modern text-writers incline to this view, and this seems to be the better opinion.

Hostilities within the territory of the neutral State.

The rights of war can be exercised only within the territory of the belligerent powers, upon the high seas, or in a territory belonging to no one. Hence it follows that hostilities cannot lawfully be exercised within the territorial jurisdiction of a neutral State, and within the limits of this territorial jurisdiction are included ports, harbours, bays and mouths of rivers belonging to the State, and by the general usage of nations, a distance of a marine league, measured from low-water mark, along all the coasts of the State. Not only are all captures made by belligerent vessels within the limits of this jurisdiction absolutely null and void, but captures made without those limits by armed vessels stationed in a bay or river, or at the mouth of a river, or in the harbour of a neutral State, for the purpose of exercising the rights of war from this station, are also invalid. And where a capture of enemy's property is made within neutral territory, or by armaments unlawfully fitted out within the same, it is the right as well as the duty of the neutral State, where the State has the power to enforce its right and to fulfil its duty, to restore it to the original owners. But it must be remembered that though hostilities cannot lawfully be exercised within the territorial jurisdiction of a neutral State, it is a rule of the Prize Courts, in the case of a capture, that restoration to the individual claimant cannot be made on the application of the neutral government whose territory has been thus violated. This rule is founded upon the principle that the neutral State alone has been injured by the capture, and that the hostile claimant has no right to appear for the purpose of suggesting the invalidity of such capture. Similarly, it is a rule of international law that a belligerent who, when attacked in neutral territory, elects to defend himself instead of trusting for protection or refuge to his host, himself violates the sovereignty of the neutral and that such violation frees the neutral from responsibility. The belligerent who considers himself injured in these circumstances, by the enemy attacking him within the territorial jurisdiction of a neutral State, has not himself, nor has anyone else on his behalf, either the right or cause to complain.

The exemption above referred to extends also to the passage of an army or fleet through the limits of the territorial jurisdiction

which can hardly be considered an innocent passage such as one nation has a right to demand from another ; and, even if it were such an innocent passage, it is one of those imperfect rights, the exercise of which depends upon the consent of the proprietor and which cannot be compelled against his will. Thus, though the Black Sea is not a *mare clausum* and is open to the commerce of all nations, the right of the territorial jurisdiction which Turkey exercises over the Dardanelles and the Bosphorus is not interfered with. Those straits are bounded on both sides by the territory of the Sultan and are, in most parts, less than six miles wide ; consequently he has a right to exclude all foreign ships of war from entering or passing either of them. This right which is exercised by the Sultan of Turkey has been recognised in the Treaties of London, 1841, and of Paris, 1856, and, also, though in a somewhat modified form, in the Treaty of London, 1871.

An exception arises in the case of the Suez Canal, the neutrality of which has been guaranteed by the International Convention of 1888. The effect of that convention is to open the Canal in time of war as in time of peace to every vessel of commerce or of war, without distinction of flag, and to free it from the exercise of the right of blockade. But in time of war the Canal, as respects the ships of belligerents, is in a position analogous to that of a neutral port, even though Turkey (the territorial power) should be one of the belligerents. Where they are not in conflict with the rules of neutrality adopted by the Convention, the rights of Turkey as the territorial power are reserved.

Admission of belligerent vessels into neutral ports.

The reception or exclusion of belligerent vessels of war in neutral ports is a matter entirely at the discretion of the neutral government. An opinion has been expressed by some text-writers, that belligerent vessels not only are entitled to seek an asylum and hospitality in neutral ports, but have a right to bring in and sell their prizes within those ports. But there seems to be nothing in the established principles of public law which can prevent the neutral State from withholding the exercise of this privilege impartially from all the belligerent powers ; or even from granting it to one of them and refusing it to others, where stipulated by treaties existing previous to the war. The usage of nations, as testified in their marine ordinances, sufficiently shows that this is a rightful exercise of the sovereign authority which every State possesses, to regulate the laws and rules of its own sea-ports and to preserve the public peace within its own territory. But the absence of a positive prohibition, implies a permission to enter the neutral ports for these purposes. It would seem, however, that positive prohibitions are now the rule as regards the entry of war vessels with their prizes into neutral ports, where the belligerent war vessels of a friendly nation make any restrictions upon

provisions, coal, and other supplies (not being arms or munitions of war). It is not a positive rule of international law that the supplies purchased must be limited to any particular quantity, or that the stay of a belligerent vessel of war in a neutral port must be limited to a specified time. So long as the neutral supplies and treats both parties equally, neither has any right to complain.

In practice, however, on the outbreak of a maritime war, neutral States generally make some rules on this subject. The rules made by England during the American Civil War were followed with slight modifications if any alterations during the Franco-German war, 1870-71, during the Russo-Turkish war, 1877-78, again during the Spanish-American war, 1898, and are now again being enforced during the existence of hostilities between Russia and Japan. It may be convenient to give them here in full, as they show what the established practice of England is in this respect:

"His Majesty being fully determined to observe the duties of neutrality during the existing state of war between Russia and Japan, and being, moreover, resolved to prevent, as far as possible, the abuse of His Majesty's harbours, ports, and coasts, and the waters within His Majesty's territorial jurisdiction in aid of the warlike purposes of either belligerent, has commanded me* to communicate to you, for your guidance, the following rules which are to be treated as enforced as His Majesty's orders and directions:—

Rule I.—During the continuance of the present state of war, ships of war of either belligerent are prohibited from making use of any port or roadstead in the United Kingdom, the Isle of Man, the Channel Islands, or in any of His Majesty's Colonies or Foreign possessions or dependencies, or of any waters subject to the territorial jurisdiction of the British Crown, as a station or place of resort, or for any warlike purpose, or for the purpose of obtaining any supplies for warlike equipment. And no ship of war of either belligerent shall hereafter be permitted to leave any such port, roadstead, or waters from which any vessel of either belligerent (whether the same shall be a vessel of war, or a merchant ship) shall have previously departed, until after the expiration of at least twenty-four hours from the departure of such last-mentioned vessel, by the territorial jurisdiction of His Majesty.

Rule II.—If there is now in any such port, roadstead, or waters subject to the territorial jurisdiction of the British Crown, any ship of war of either belligerent, such ship of war shall leave such port, roadstead, or waters within such time, not less than twenty-four hours as shall be reasonable, having regard to all circumstances, and the condition of such ship as to repairs, provisions, or things necessary for the subsistence of her crew. And if, within the time hereof any ship of war of either belligerent shall enter any such port, roadstead, or waters, subject to the territorial jurisdiction of the British Crown, such ship shall depart

* Secretary of State for Foreign Affairs.

† Secretary of State for India.

and put to sea within twenty-four hours after her entrance into any such port, roadstead, or waters, except in case of stress of weather, or of her requiring provisions or things necessary for the subsistence of her crew, or repairs, in either of which cases, the authorities of the port, or of the nearest port, (as the case may be), shall require her to put to sea as soon as possible after the expiration of such period of twenty-four hours, without permitting her to take in supplies beyond what may be necessary for her immediate use, and no such vessel, which may have been allowed to remain within British waters for the purpose of repair, shall continue in any such port, roadstead, or waters, for a longer period than twenty-four hours after her necessary repairs shall have been completed. Provided, nevertheless, that, in all cases in which there shall be any vessels (whether ships of war or merchant ships) of both the said belligerent parties in the same port, roadstead, or waters within the territorial jurisdiction of His Majesty, there shall be an interval of not less than twenty-four hours between the departure therefrom of any such vessel (whether a ship of war or a merchant man) of the one belligerent, and the subsequent departure therefrom of any ship of war of the other belligerent. And the time hereby limited for the departure of such ships of war respectively, shall always in case of necessity be extended so far as may be requisite for giving effect to this proviso, but no further or otherwise.

Rule III.—No ship of war of either belligerent shall hereafter be permitted, while in any port, roadstead, or waters, subject to the territorial jurisdiction of His Majesty, to take in any supplies except provisions and such other things as may be requisite for the subsistence of her crew, and except so much coal only as may be sufficient to carry such vessel to the nearest port of her own country, or to some nearer named neutral destination; and no coal shall be again supplied any such ship of war in the same or any other port, roadstead, or waters, subject to the territorial jurisdiction of His Majesty, without special permission, until after the expiration of three months from the time when such coal may have been last supplied to her within British waters as aforesaid.

Rule IV.—Armed ships of either belligerent are interdicted from carrying prizes made by them into the ports, harbours, roadsteads, or waters of the United Kingdom, the Isle of Man, the Channel Islands, or any of His Majesty's colonies or possessions abroad.

The Governor or other chief authority of each of His Majesty's territories or possessions beyond the seas shall forthwith notify and publish the above rules."*

* Foreign Department Notification No. 513-E. B., Gazette of India Extraordinary, 13th February 1904.

The above restrictions, it will be observed, do not apply to the merchant vessels of either belligerent entering a British port. To such vessels are extended the ordinary hospitalities of a friendly port as in time of peace.

The practice of other powers in this respect has not always been as set forth above for Great Britain, and there is no uniform practice established; but the rule that when two hostile ships of war meet in a neutral port, the local authorities are to detain one till twenty-four hours after the departure of the other, is very general in practice. It is a very reasonable rule, and with the universal use of steam on ships of war, the limit of twenty-four hours gives ample time for the vessel that starts first to get out of the reach of the other, if desirous of doing so.

The British rules, it may have been noticed, allow a belligerent ship of war to enter a British port for repairs, and so do the rules of most nations. This constitutes a real exception to the rule that neutrals may not assist belligerent ships of war in carrying on their warlike operations. Although such ships may not purchase arms or ammunition, or recruit men, in the neutral port, yet they may be repaired in it to an extent sufficient to render them navigable and seaworthy. This is in reality assisting the belligerent; for the ship in fact refits herself for war by repairing her engines, quite as much as by repairing, say, her gun carriages; but she is allowed to do the one and not the other. The reason for allowing her to be repaired seems to be that unless this were allowed, she might be unable to leave the neutral port at all. The question of partiality does not, of course, arise, so long as the privilege is granted equally to either belligerent.

The supply of ships and munitions of war to belligerents.

The duties of neutral States as regards their supplying belligerents with ships and munitions of war, have been much discussed and have been brought into much prominence in recent times. It is fully recognised that a vessel completely armed, and in every respect fitted the moment it receives its crew, to act as a man-of-war, is a proper subject of commerce. There is nothing to prevent its neutral possessor from selling it and undertaking to deliver it to the belligerent either in the neutral port or in that of the purchaser, subject to the right of the other belligerent to seize it as contraband if he meets it on the high seas or within his enemy's waters. "There is nothing," says Mr. Justice Story, "in the law of nations, that forbids our citizens from sending armed vessels as well as munitions of war to foreign ports for sale. It is a commercial adventure which no nation is bound to prohibit." If the neutral may sell his vessel when built, he may sell it to order; and it must be permissible, as between the belligerent and the neutral State, to give the order, which it is permissible to execute. It would appear therefore, arguing from general principle alone, that a vessel of war may be built, armed, and furnished with a minimum navigating crew, and that in this state, provided it has not received a commission, it may clear from a neutral harbour on a confessed voyage to a belligerent port, without any intraction of neutrality having been committed. The question remains, Is there a

special usage with respect to the building and fitting out of ships, which abridges the common law privileges of neutrals?

A comparison of international custom with the logical results of the unquestioned principles of neutrality seems to lead to the following conclusions :—

1. That an international usage prohibiting the construction and outfit of vessels of war, in the strict sense of the term, is in course of growth, but that although it is adopted by the most important maritime powers, it is not yet old enough, or quite wide enough, to have become compulsory on those nations which have not yet signified their voluntary adherence to it.
2. That in the meantime a ship of war may be built and armed to the order of a belligerent, and delivered to him outside neutral territory ready to receive a fighting crew; or it may be delivered to him within such territory, and may issue as belligerent property, if it is neither commissioned nor so manned as to be able to commit immediate hostilities, and if there is not good reason to believe that an intention exists of making such fraudulent use of the neutral territory as has been before indicated.

As regards England her common law privileges are abridged by the Treaty of Washington, 1871, and by the Foreign Enlistment Act, 1870.

By Article VI of the Treaty of Washington, 1871, between Great Britain and the United States, the High Contracting Parties agreed to observe the following rules as between themselves in future, and to bring them to the knowledge of other maritime powers, and to invite them to accede to them. A neutral government was declared to be bound :—

- 1st.—To use due diligence to prevent the fitting out, arming, or equipping within its jurisdiction, of any vessel which it has reasonable ground to believe is intended to cruise or to carry on war against a power with which it is at peace; and also to use like diligence to prevent the departure from its jurisdiction of any vessel intended to cruise or carry on war as above, such vessel having been specially adapted in whole, or in part, within such jurisdiction, to warlike use.
- 2nd.—Not to permit or suffer either belligerent to make use of its ports or waters as the base of naval operations against the other, or for the purpose of the renewal or augmentation of military supplies or arms, or the recruitment of men.
- 3rd.—To exercise due diligence in its own ports and waters, and, as to all persons within its jurisdiction, to prevent any violation of the foregoing obligations and duties.

Owing to a difference of opinion between the two countries as to the interpretation of the rules, foreign States have not been invited to accede to them, and it is useless to speculate as to the effect which

Neutrality may also be modified by antecedent engagements, by which the neutral is bound to one of the parties to the war. Thus the neutral may be bound by treaty, previous to the war, to furnish one of the belligerent parties with a limited succour in money, troops, ships, or munitions of war, or to open his ports unconditionally to the armed vessels of his ally, the fulfilment of such an obligation has been held, does not necessarily forfeit his neutral character, nor render him the enemy of the other belligerent nation, but, as Sir John Phillimore observes "a State has no right to stipulate, in time of peace, that when the time of war arrives it will do the act of a belligerent and yet claim the immunity of a neutral." The more modern text-writers incline to this view, and this seems to be the better opinion.

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The rights of war can be exercised only within the territory of the belligerent powers, upon the high seas, or in a territory belonging to no one. Hence it follows that hostilities cannot lawfully be exercised within the territorial jurisdiction of a neutral State, and within the limits of this territorial jurisdiction are included ports, harbours, bays and mouths of rivers belonging to the State, and by the general usage of nations, a distance of a marine league, measured from low-water mark, along all the coasts of the State. Not only are all captures made by belligerent vessels within the limits of this jurisdiction absolutely null and void, but captures made without those limits by armed vessels stationed in a bay or river, or at the mouth of a river, or in the harbour of a neutral State, for the purpose of exercising the rights of war from this station, are also invalid. And where a capture of enemy's property is made within neutral territory, or by armaments unlawfully fitted out within the same, it is the right as well as the duty of the neutral State, where the State has the power to enforce its right and to fulfil its duty, to restore it to the original owners. But it must be remembered that though hostilities cannot lawfully be exercised within the territorial jurisdiction of a neutral State, it is a rule of the Prize Courts, in the case of a capture, that restoration to the individual claimant can only be made on the application of the neutral government whose territory has been thus violated. This rule is founded upon the principle that the neutral State alone has been injured by the capture, and that the hostile claimant has no right to appear for the purpose of suggesting the invalidity of such capture. Similarly, it is a rule of international law that a belligerent who, when attacked in neutral territory, elects to defend himself instead of trusting for protection or refuge to his host, himself violates the sovereignty of the neutral and is such violator on foot of the neutral from responsibility. The belligerent who considers himself injured in these circumstances, by the enemy attacking him within the territorial jurisdiction of a neutral State, has not himself, nor has anyone else on his behalf, either the right or cause to complain.

The exemption above referred to extends also to the passage of an army or fleet through the limits of the territorial jurisdiction

which can hardly be considered an innocent passage such as one nation has a right to demand from another ; and, even if it were such an innocent passage, it is one of those imperfect rights, the exercise of which depends upon the consent of the proprietor and which cannot be compelled against his will. Thus, though the Black Sea is not a *mare clausum* and is open to the commerce of all nations, the right of the territorial jurisdiction which Turkey exercises over the Dardanelles and the Bosphorus is not interfered with. Those straits are bounded on both sides by the territory of the Sultan and are, in most parts, less than six miles wide ; consequently he has a right to exclude all foreign ships of war from entering or passing either of them. This right which is exercised by the Sultan of Turkey has been recognised in the Treaties of London, 1841, and of Paris, 1856, and, also, though in a somewhat modified form, in the Treaty of London, 1871.

An exception arises in the case of the Suez Canal, the neutrality of which has been guaranteed by the International Convention of 1888. The effect of that convention is to open the Canal in time of war as in time of peace to every vessel of commerce or of war, without distinction of flag, and to free it from the exercise of the right of blockade. But in time of war the Canal, as respects the ships of belligerents, is in a position analogous to that of a neutral port, even though Turkey (the territorial power) should be one of the belligerents. Where they are not in conflict with the rules of neutrality adopted by the Convention, the rights of Turkey as the territorial power are reserved.

Admission of belligerent vessels into neutral ports.

The reception or exclusion of belligerent vessels of war in neutral ports is a matter entirely at the discretion of the neutral government. An opinion has been expressed by some text-writers, that belligerent vessels not only are entitled to seek an asylum and hospitality in neutral ports, but have a right to bring in and sell their prizes within those ports. But there seems to be nothing in the established principles of public law which can prevent the neutral State from withholding the exercise of this privilege impartially from all the belligerent powers ; or even from granting it to one of them and refusing it to others, where stipulated by treaties existing previous to the war. The usage of nations, as testified in their marine ordinances, sufficiently shows that this is a rightful exercise of the sovereign authority which every State possesses, to regulate the laws and rules of its own sea-ports and to preserve the public peace within its own territory. But the absence of a positive prohibition, implies a permission to enter the neutral ports for these purposes. It would seem, however, that positive prohibitions are now the rule as regards the entry of war vessels with their prizes into neutral ports for any purpose whatsoever. Without their prizes, where there are no prohibitions or conditions of entry, belligerent war vessels are entitled to expect all the ordinary hospitalities of a friendly port ; and a neutral is not required by the law of nations to make any such prohibitory or conditional rules, or to place any restrictions upon the liberty which it accords of purchasing

provisions, coal, and other supplies (not being arms or munitions of war). It is not a positive rule of international law that the supplies purchased must be limited to any particular quantity, or that the stay of a belligerent vessel of war in a neutral port must be limited to a specified time. So long as the neutral supplies and treats both parties equally, neither has any right to complain.

In practice, however, on the outbreak of a maritime war, neutral States generally make some rules on this subject. The rules made by England during the American Civil War were followed with slight, if any, alterations during the Franco-German war, 1870-71, during the Russo-Turkish war, 1877-78, again during the Spanish-American war, 1898, and are now again being enforced during the existence of hostilities between Russia and Japan. It may be convenient to give them here in full, as they show what the established practice of England is in this respect:

"His Majesty being fully determined to observe the duties of neutrality during the existing state of war between Russia and Japan, and being, moreover, resolved to prevent, as far as possible, the use of His Majesty's harbours, ports, and coasts and the waters within His Majesty's territorial jurisdiction in aid of the warlike purposes of either belligerent, has commanded me* to communicate to you,† for your guidance, the following rules which are to be treated and enforced as His Majesty's orders and directions:—

Rule I.—During the continuance of the present state of war, all ships of war of either belligerent are prohibited from making use of any port or roadstead in the United Kingdom, the Isle of Man, the Channel Islands, or in any of His Majesty's Colonies or Foreign possessions or dependencies, or of any waters subject to the territorial jurisdiction of the British Crown, as a station or place of resort for any warlike purpose, or for the purpose of obtaining any facilities for warlike equipment. And no ship of war of either belligerent shall hereafter be permitted to leave any such port, roadstead, or waters from which any vessel of the other belligerent (whether the same shall be a ship of war, or a merchant ship) shall have previously departed, until after the expiration of at least twenty-four hours from the departure of such last-mentioned vessel, beyond the territorial jurisdiction of His Majesty.

Rule II.—If there is now in any such port, roadstead, or waters, subject to the territorial jurisdiction of the British Crown, any ship of war of either belligerent, such ship of war shall leave such port, roadstead, or waters within such time, not less than twenty-four hours, as shall be reasonable, having regard to all circumstances and the condition of such ship as to repairs, provisions, or things necessary for the subsistence of her crew. And, if after the date hereof any ship of war of either belligerent shall enter any such port, roadstead, or waters, subject to the territorial jurisdiction of the British Crown, such ship shall depart

* Secretary of State for Foreign Affairs.

† Secretary of State for India.

and put to sea within twenty-four hours after her entrance into any such port, roadstead, or waters, except in case of stress of weather, or of her requiring provisions or things necessary for the subsistence of her crew, or repairs, in either of which cases, the authorities of the port, or of the nearest port, (as the case may be), shall require her to put to sea as soon as possible after the expiration of such period of twenty-four hours, without permitting her to take in supplies beyond what may be necessary for her immediate use, and no such vessel, which may have been allowed to remain within British waters for the purpose of repair, shall continue in any such port, roadstead, or waters, for a longer period than twenty-four hours after her necessary repairs shall have been completed. Provided, nevertheless, that, in all cases in which there shall be any vessels (whether ships of war or merchant ships) of both the said belligerent parties in the same port, roadstead, or waters within the territorial jurisdiction of His Majesty, there shall be an interval of not less than twenty-four hours between the departure therefrom of any such vessel (whether a ship of war or a merchant man) of the one belligerent, and the subsequent departure therefrom of any ship of war of the other belligerent. And the time hereby limited for the departure of such ships of war respectively, shall always in case of necessity be extended so far as may be requisite for giving effect to this proviso, but no further or otherwise.

Rule III.—No ship of war of either belligerent shall hereafter be permitted, while in any port, roadstead, or waters, subject to the territorial jurisdiction of His Majesty, to take in any supplies except provisions and such other things as may be requisite for the subsistence of her crew, and except so much coal only as may be sufficient to carry such vessel to the nearest port of her own country, or to some nearer named neutral destination; and no coal shall be again supplied any such ship of war in the same or any other port, roadstead, or waters, subject to the territorial jurisdiction of His Majesty, without special permission, until after the expiration of three months from the time when such coal may have been last supplied to her within British waters as aforesaid.

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The Governor or other chief authority of each of His Majesty's territories or possessions beyond the seas shall forthwith notify and publish the above rules."*

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The British rules, it may have been noticed, allow a belligerent ship of war to enter a British port for repairs, and so do the rules of most nations. This constitutes a real exception to the rule that neutrals may not assist belligerent ships of war in carrying on their warlike operations. Although such ships may not purchase arms or ammunition, or recruit men, in the neutral port, yet they may be repaired in it to an extent sufficient to render them navigable and seaworthy. This is in reality assisting the belligerent; for the ship in fact refits herself for war by repairing her engines, quite as much as by repairing, say, her gun carriages; but she is allowed to do the one and not the other. The reason for allowing her to be repaired seems to be that unless this were allowed, she might be unable to leave the neutral port at all. The question of partiality does not, of course, arise, so long as the privilege is granted equally to either belligerent.

The supply of ships and munitions of war to belligerents.

The duties of neutral States as regards their supplying belligerents with ships and munitions of war, have been much discussed and have been brought into much prominence in recent times. It is fully recognised that a vessel completely armed, and in every respect fitted, the moment it receives its crew, to act as a man-of-war, is a proper subject of commerce. There is nothing to prevent its neutral possessor from selling it and undertaking to deliver it to the belligerent either in the neutral port or in that of the purchaser, subject to the right of the other belligerent to seize it as contraband if he meets it on the high seas or within his enemy's waters. "There is nothing," says Mr. Justice Story, "in the law of nations, that forbids our citizens from sending armed vessels as well as munitions of war to foreign ports for sale. It is a commercial adventure which no nation is bound to prohibit." If the neutral may sell his vessel when built, he may build it to order; and it must be permissible, as between the belligerent and the neutral State, to give the order, which it is permissible to execute. It would appear therefore, arguing from general principles alone, that a vessel of war may be built, armed, and furnished with a minimum navigating crew, and that in this state, provided it has not received a commission, it may clear from a neutral harbour on a confessed voyage to a belligerent port, without any infraction of neutrality having been committed. The question remains, Is there a

special usage with respect to the building and fitting out of ships, which abridges the common law privileges of neutrals?

A comparison of international custom with the logical results of the unquestioned principles of neutrality seems to lead to the following conclusions :—

1. That an international usage prohibiting the construction and outfit of vessels of war, in the strict sense of the term, is in course of growth, but that although it is adopted by the most important maritime powers, it is not yet old enough, or quite wide enough, to have become compulsory on those nations which have not yet signified their voluntary adherence to it.
2. That in the meantime a ship of war may be built and armed to the order of a belligerent, and delivered to him outside neutral territory ready to receive a fighting crew; or it may be delivered to him within such territory, and may issue as belligerent property, if it is neither commissioned nor so manned as to be able to commit immediate hostilities, and if there is not good reason to believe that an intention exists of making such fraudulent use of the neutral territory as has been before indicated.

As regards England her common law privileges are abridged by the Treaty of Washington, 1871, and by the Foreign Enlistment Act, 1870.

By Article VI of the Treaty of Washington, 1871, between Great Britain and the United States, the High Contracting Parties agreed to observe the following rules as between themselves in future, and to bring them to the knowledge of other maritime powers, and to invite them to accede to them. A neutral government was declared to be bound :—

- 1st.—To use due diligence to prevent the fitting out, arming, or equipping within its jurisdiction, of any vessel which it has reasonable ground to believe is intended to cruise or to carry on war against a power with which it is at peace; and also to use like diligence to prevent the departure from its jurisdiction of any vessel intended to cruise or carry on war as above, such vessel having been specially adapted in whole, or in part, within such jurisdiction, to warlike use.
- 2nd.—Not to permit or suffer either belligerent to make use of its ports or waters as the base of naval operations against the other, or for the purpose of the renewal or augmentation of military supplies or arms, or the recruitment of men.
- 3rd.—To exercise due diligence in its own ports and waters, and, as to all persons within its jurisdiction, to prevent any violation of the foregoing obligations and duties.

Owing to a difference of opinion between the two countries as to the interpretation of the rules, foreign States have not been invited to accede to them, and it is useless to speculate as to the effect which

might be given to the provisions of the treaty during any future war in which either Great Britain, or the United States, is a belligerent, the other of the two being neutral.

By the Foreign Enlistment Act, 1870 (33 & 34 Vict., c. 90), it is an offence to build or cause to be built, or to equip or despatch, or to cause or allow to be despatched, any ship, with intent or knowledge, or having reasonable cause to believe that the same will be employed in the service of any foreign State at war with any friendly State.

The Act goes far beyond what international law requires. It creates a new crime—that of building—and makes British subjects liable to penalties for acts which are lawful by the law of nations, and by all other municipal laws. It places the ship building trade of Great Britain at a disadvantage, as compared with that of the rest of the world. These results were foreseen, as the Royal Commission appointed in 1863 to enquire into the working of the Foreign Enlistment Act, 1819, which was superseded by the Act of 1870, added in their report, "In making the foregoing recommendations, we have not felt ourselves bound to consider whether we were exceeding what would actually be required by international law, but we are of opinion that if those recommendations should be adopted, the municipal law of this realm available for the enforcement of neutrality will derive increased efficiency, and will, so far as we can see, have been brought into full conformity with your Majesty's international obligations."

Immunity of the neutral territory: How far it extends to neutral vessels on the high seas.

The unlawfulness of belligerent captures made within the territorial jurisdiction of a neutral State is incontestably established on principle, usage, and authority. But this immunity of the neutral territory does not extend to the vessels of the nation on the high seas, and without the jurisdiction of any other State.

A distinction must, however, be made between the public and the private vessels of a nation. In respect to its public vessels, which are considered to form part of its territory, it is universally admitted that neither the right of visitation and search, of capture, nor any other belligerent right, can be exercised on board such a vessel on the high seas. A public vessel belonging to an independent sovereign is exempt from every species of visitation and search, even within the territorial jurisdiction of another State; *a fortiori* must it be exempt from the exercise of belligerent rights on the ocean, which belongs exclusively to no one nation.

In respect to private vessels the case is different. Though according to some writers such ships also are floating portions of the country upon which they depend, they form in reality no part of the neutral territory. The jurisdiction exercised by a State over its merchant vessels upon the ocean is one which is conceded to it in virtue of its ownership of them as property in a place where no local jurisdiction exists; not because they are, by a fiction of law, considered to be a continuation of the territory of the State under whose flag they sail.

Besides, it is well established that when within the territorial jurisdiction of another State, they are not exempt from the local jurisdiction. In this view, it has been held that the right of visitation and search, of capture, and any other belligerent right, may be exercised on the private vessels of a neutral State on the high seas, as much as within the territory of the enemy, or in a place belonging to no one.

Whatever may be the true original abstract principle of natural law on this subject, it is undeniable that the constant usage and practice of belligerent nations, from the earliest times, have subjected enemy's goods in neutral vessels to capture and condemnation as prize of war. This constant and universal usage has only been interrupted by treaty stipulations, forming a temporary conventional law between the parties to such stipulations. On the other hand the converse rule, which subjects to confiscation the goods of a friend on board the vessels of an enemy—though it has at times been incorporated into the prize codes of certain nations—is manifestly contrary to both reason and justice.

No branch of international law has been debated at such length, or with greater keenness, than that which refers to belligerent goods carried in neutral vessels, and to neutral goods carried in enemy's vessels. But the controversy was brought to a close in 1856 by the Declaration of Paris, to which all the powers but the United States acceded, and which provides as follows:—

"Art. 2.—The neutral flag covers enemy's goods with the exception of contraband of war.

Art. 3.—Neutral goods, with the exception of contraband of war, are not liable to capture under the enemy's flag."

This Declaration was a great step in favour of neutrals, and curtailed the rights of belligerents. But it does not entirely free neutral commerce from the effects of war. The belligerent right of search may still be exercised, both for the purpose of ascertaining the true character of a ship sailing under a neutral flag and to discover whether she carries any contraband.

It has already been said that the United States are not a party to this Declaration and are therefore not bound by it; nevertheless during the Civil War, these two rules were observed by both parties. It is probable therefore that the Declaration has permanently secured an identical practice among all the maritime powers.

Contraband of war.

The general freedom of neutral commerce with the respective belligerent powers, is subject to certain exceptions. Among these is the trade with the enemy in certain articles called contraband of war. At no time, however, has opinion been unanimous as to what articles ought to be ranked as being of this nature, and no distinct and binding usage has hitherto been formed, except with regard to a very restricted class. Hugo Grotius, the founder of the science of international law, writing in 1625, made a distinction between those things which are useful only for the purposes of war, those which are not so, and those which are susceptible of indiscriminate use in peace and in war. The first he agrees with all other text-writers in prohibiting

neutrals from carrying to the enemy, as well as in permitting the second to be so carried; the third class, such as money, provisions, ships, and naval stores, he sometimes prohibits, and at others permits, according to the existing circumstances of the war. It is the latter class which has given rise to much discussion ever since his time, and the question as to what is, and what is not, contraband, cannot as yet be answered with precision. No complete list of goods which are always to be deemed contraband has ever been drawn up, nor does it seem likely that it ever will be. That which is contraband in certain circumstances, may not be so in others. The main question, when an article is of doubtful use, is, whether it was intended, or would probably be applied, to military purposes; and this is a question which has to be determined by the tribunals of the belligerent State, to the operations of whose cruisers the neutral marchant vessel is exposed.

The English Prize Court has held certain articles to be always contraband. To this class belong: Arms of all kinds, ammunition, explosive substances, and machinery and materials for the manufacture of arms and ammunition; military equipments and clothing, and military stores; naval stores such as spars, cordage, and sailcloth; marine engines and their components; and such articles of manufactured iron as anchors, rivets, round bars of certain dimensions, and sheet plate iron exceeding a certain thickness. Among the articles which have been held to be contraband when the circumstances showed that they were probably intended to be applied to warlike purposes, are: Provisions and liquors fit for the consumption of the army or navy; money; telegraphic materials; materials for railway construction; timber; coal; horses, and fodder. With regard to horses, under the mere light of common sense the possibility of looking upon them as contraband seems hardly open to argument. They may no doubt be important during war time for agricultural purposes, as powder may be used for fireworks! But the presumption is certainly not in this direction.

The more common practice is to take the vessel carrying contraband, with its cargo, into a port of the captor, where the articles of contraband are duly condemned: but the vessel itself is ordinarily visited with no further penalty than loss of time, freight, and expenses. If, however, the ship and cargo belong to the same owners, or if the owner of the former is privy to the carriage of the contraband goods, the vessel also is involved in their fate. The principle which, according to the English practice, governs the treatment of innocent merchandise found on board a ship engaged in the transport of contraband, is identical with that which affects the vessel itself. Thus it has been held that "to escape the contagion of contraband, the innocent articles must be the property of a different owner."

Some writers, overlooking the fact that a neutral has rights as well as a belligerent, have laid down the doctrine that the exportation of contraband is a breach of neutrality. The practice of nations in no way bears out such an assertion. In every war, neutrals have traded in contraband, but with the risk of having the goods

condemned if captured by the enemy. Few rules of international law are so certain as that a neutral government cannot be made responsible as for a breach of neutrality, because its subjects carry on a contraband trade. The trade must, however, be confined to subjects. If carried on by the government itself, it then will amount to a violation of neutral duties.

Carriage of belligerent persons and despatches.

Of the same nature as the carrying of contraband goods, is the transportation of military persons in the service of a belligerent, or of despatches bearing on the conduct of the war. A neutral, who voluntarily does acts of this kind personally, enters the service of the belligerent; he contracts as a servant to perform acts intended to affect the issue of the war, and he makes himself in effect the enemy of the other belligerent. In doing so, however, he does not compromise the neutrality of his own sovereign, since the non-neutral acts are either as a matter of fact done beyond the territorial jurisdiction of the latter, or if initiated within it, as sometimes is the case in carrying despatches, they are of too secret a nature to be, as a general rule, known or prevented. Hence the belligerent is allowed to protect himself by means analogous to those which he uses in the suppression of the contraband trade; and, the consequences of such assistance being greater, the belligerent has a stronger right to prevent and punish it. It has been stated above, that in the case of ordinary contraband trade the contraband merchandise is confiscated, but the vessel usually suffers no further penalty than loss of time, freight and expenses. In the case of the transport of despatches, or belligerent persons, the despatches are of course seized, the persons become prisoners of war, and the ship is confiscated. The different treatment of the ship in the two cases, corresponds to the different character of the acts of its owner. For simple carriage of contraband, the carrier lies under no presumption of enmity towards the belligerent, and his loss of freight, etc., is a sensible deterrent from the forbidden traffic; but when he enters the service of the enemy, seizure of the transported objects is not likely to affect his earnings, while at the same time he has so acted, as fully to justify the employment towards him of greater severity. These severe penalties are, however, only enforced when the neutral has so acted as to have virtually entered the service of the belligerent. They are not applied in the case of the carriage of despatches, when the neutral has been in the habit, in the way of his ordinary business, of carrying post bags to, or from, a belligerent port, and receives sealed despatches, with other letters in the usual bags, or, it is said, even if he receives a separate bundle of despatches without special remuneration, as he cannot be said to make a bargain with the belligerent, or to enter his service personally, for belligerent purposes. Nor are they applied in the case of the carriage of persons in the service of the enemy, when the neutral in the way of his ordinary business, holds himself out as a common carrier, willing to transport everybody who may come to him for a certain sum of money, from one specified place to another; in which case he cannot be supposed to identify himself specially with

belligerent persons in the service of the State who take passage with him. But when a neutral has, by doing either of the acts mentioned above, virtually entered the service of the belligerent, his ship, if captured, will be liable to confiscation even if he can show that she was impressed by violence into the enemy's service. The master cannot, in such a case, be permitted to aver that he was an involuntary agent ; as, were an act of force exercised by one belligerent power on a neutral ship or person, to be considered a justification for an act contrary to the known duties of the neutral character, there would be an end of any prohibition under the law of nations to carry contraband, or to engage in any other hostile act. If any loss is sustained in such a service, the neutral yielding to such demands must seek redress from the Government which has imposed the restraint upon him. Nor is it deemed material, in the judgment of the Prize Court, whether the master be ignorant of the character of the service on which his vessel is engaged ; it is deemed sufficient if there has been an injury arising to the belligerent from the employment in which the vessel is found.

The foregoing remarks do not apply to the despatches sent from an ambassador, or other public minister of the enemy, resident in a neutral country, to his government at home or *vice versa*. Such functionaries are in a peculiar manner the favourite object of the protection of the law of nations, when residing in the neutral country for the purpose of preserving the relations of amity between that State and their own country, and on this ground a very material distinction is made with respect to the right of furnishing the conveyance for such despatches. Nor are they, by almost general consent, held to apply to the conveyance, as passengers to a neutral port, of persons going as diplomatic agents of the enemy to a neutral country.

Trade with blockaded ports.

Another exception to the general freedom of neutral commerce in time of war is to be found in the trade to ports or places besieged or blockaded by one of the belligerent powers.

The law of blockade, like that of contraband, is a compromise between the conflicting rights of belligerents and neutrals, *vis.*, the right of the former to injure his foe, so as to compel him to give up the struggle, and the right of the latter to carry on his usual trade with that foe. It is often said that the violation of a blockade as well as the transportation of contraband are unlawful, but this requires some explanation. If by this expression it is intended to imply that such acts are contrary to international law, in the sense of being criminal, or as being acts of disobedience to a positive rule, the term 'unlawful' is then wrongly used. Neutral subjects are under no positive duty, imposed by the law of nations, to abstain from blockade running, or from carrying contraband of war. The acts which amount to this in time of war are perfectly legitimate in time of peace, but the existence of war gives to the belligerent certain rights which they may enforce against the neutrals who engage in these two transactions. Thus

the exportation of a cargo of arms to any State during peace is indisputably lawful, and it is also in a certain sense not unlawful when the State to which the arms are consigned is at war; but in this case the sender is exposed to the risk of forfeiting his goods, if the other belligerent can capture them on their way. So it is with blockade. Its violation only exposes the blockade runner to the chance of losing his ship and cargo, if he is unsuccessful. It is no violation of neutrality for a State not to prevent its subjects from engaging in such traffic; its duty as a neutral consists in letting them do so at their own risk, and abandoning them to the Prize Courts of the belligerent who may capture them. In British proclamations of neutrality, the clause by which subjects are warned of the risk they incur, usually runs as follows:—

“And we hereby further warn all our loving subjects, and all persons whatsoever entitled to our protection, that if any of them shall presume, in contempt of this Our Royal Proclamation, and of Our high displeasure, to do any acts in derogation of their duty as subjects of a neutral sovereign in a war between other sovereigns, or in violation or contravention of the law of nations in that behalf, as more especially by breaking, or endeavouring to break, any blockade lawfully and actually established, by, or on behalf of, either of the belligerent States, or by carrying officers, soldiers, despatches, arms, ammunition, military stores or materials, or any article or articles considered and deemed to be contraband of war, according to the law or modern usages of nations, for the use, or service, of either of the belligerent States, that all persons so offending, together with their ships and goods, will rightly incur and be justly liable to hostile capture, and to the penalties denounced by the law of nations in that behalf.”

Thus these transactions are only unlawful in the sense that the belligerent may inflict the punishment of confiscation if he can catch the perpetrators in the act. When the act is completed, no penalty can be imposed; the responsibility for it ceases on completion.

In the foregoing remarks it is assumed that the neutral States have not enacted any municipal law expressly forbidding blockade running, etc., and that they are not bound by any treaty obligations on the subjects. The matter is here discussed only from the point of view of international law unrestricted by any special arrangement.

To constitute a violation of blockade, three things must be proved:—

- 1st.—The existence of an actual blockade.
- 2nd.—The knowledge of the party supposed to have offended.
- 3rd.—Some act of violation, either by going in, or coming out, with a cargo laden after the commencement of the blockade.

A lawful maritime blockade requires the actual presence of a sufficient and properly disposed maritime force stationed at the entrance of the port, sufficiently near to prevent communication. The only exception to the general rule which requires the actual presence of an adequate force to constitute a lawful blockade arises out of the circumstance of the occasional temporary absence of the blockading squadron produced by accident, as in the case of a storm, which does not suspend the legal operation of the blockade. The law considers an attempt to take advantage of such an accidental removal a fraudulent attempt to break the blockade. For the blockade to be lawful, the belligerent must also intend to institute it as a distinct and substantive measure of war, and it must also have been initiated under sufficient authority.

With regard to the knowledge of the party supposed to have offended. As a blockade is not a necessary consequence of a state of war, it would evidently be impossible to assume that a neutral possesses any knowledge of its existence, until the fact of its establishment has been in some manner notified or brought home to him.

Lastly, the mere intention to violate a blockade is not a sufficient ground for condemnation ; the intention must be coupled with some act amounting at least to an attempt to violate a lawful blockade with knowledge of its existence, and the intent must be gathered from the circumstances of each case. It may be inferred, for instance, from the bills of lading, the letters and papers found on board, or the acts and words of the owners or charterers.

Visit and search of neutral private vessels.

The right of visitation and search of private neutral vessels at sea, is a belligerent right, essential to the exercise of the right of capturing enemy's property, contraband of war, and vessels committing a breach of blockade. Even if the right of capturing enemy's property in neutral vessels be ever so strictly limited, the right of visitation and search is essential, in order to determine whether the ships themselves are neutral and documented as such ; for the flag may have been fraudulently assumed, and it is only by the ship's papers that their nationality and the act in which they are engaged can best be ascertained. The practice of maritime capture could not exist at all without such a right, and, accordingly, the text-writers generally concur in recognising its existence.

Should the exercise of this right be resisted, the ship is liable to capture, as also when upon evidence obtained by the visit it is clear, or there is fair ground for suspecting, that she is engaged in an illicit act or that her cargo is liable to confiscation. The ship is also liable to capture when, from the absence of essential papers, the true character of the ship cannot be ascertained.

The right of visitation and search is an incident of war ; and as war can only be waged by the authority of a State, the right can only be

exercised by vessels provided with a commission by their sovereign. All neutral mercantile vessels are subject to this right upon the high seas and within the territorial jurisdiction of the belligerent or his enemy.

Great controversies have at various times been raised on the point whether neutral merchant vessels are liable to be visited, and are bound to submit to the visit, when sailing under convoy of ships of war of their own nation. The answer is not an established rule of law. While continental jurists are almost unanimous in maintaining the exemption from visit of convoyed ships, Great Britain adheres to the negative—a practice upon which she has always acted.

Where there is no proof that he has rendered himself liable to penalties, a neutral has the benefit of those presumptions in his favour which are afforded by his professed neutrality. His goods are *prima facie* free from liability to seizure and confiscation. If then they are seized, it is for the captor, before confiscating them, or inflicting a penalty of any kind on the neutral, to show that the acts of the latter have been such as to give him a right to do so. Property therefore in neutral goods and vessels which are seized by a belligerent, does not vest upon the completion of a capture. It remains in the neutral until judgment of confiscation has been pronounced by a competent court after due legal investigation. The courts before which the question is brought whether capture of neutral property has been effected for sufficient cause are instituted by the belligerent and sit in his territory; but the law which they administer is international law.

Belligerent troops taking refuge in neutral territory.

It is an established custom of war that a neutral State receiving in its territory or on board its ships of war—to which, as has been stated above, the legal fiction of territoriality applies—troops belonging to the belligerent armies, has the right to intern them, so far as it may be possible, away from the theatre of war. Such persons may be kept in camps, or even confined in fortresses, or in places appropriated to this purpose. The neutral State has the right to decide whether the officers may be released on giving their parole not to quit the neutral territory without authority, and, in default of a special agreement, the neutral State furnishes the interned troops with provisions, clothing and such aid as humanity demands; the expenses incurred are made good at the conclusion of peace.

Neutrals and their property in belligerent territory.

Neutral property in belligerent territory shares the liabilities of property belonging to subjects of the State in regard to such exceptional measures of jurisdiction and to such exceptional taxation and seizure for the use of the State, as the existence of hostilities may

render necessary, provided that no further burden is placed upon foreigners than is placed upon subjects. In like manner the belligerent is not obliged, taking them as a body, to show more consideration to neutral foreigners, in the conduct of his operations, than he exhibits towards other inhabitants of the country,—he need not, for example, give them an opportunity of withdrawing from a besieged town before bombardment, which he does not accord to the population at large.

COSSACK AND SOWAR.

BY MAJOR R. G. BURTON, 94TH RUSSELL'S INFANTRY.

During a long residence in Russia the present writer was engaged for some time in enquiring into the state of the Cossacks, their organisation, their tactics, and their history and traditions. A part of the result of those enquiries has been published in various magazines and journals, during a time, some eight years since, when the Cossacks and their tactics attracted some interest in military circles. As an outcome partly, it is believed, of the enquiries referred to, some attention was paid to the desirability of instructing the native cavalry in the peculiar tactics of the Cossacks known as the *lava*, with a view to enabling them to meet possible enemies on equal terms. Whether this instruction is still being proceeded with, I am not sufficiently in touch with our native cavalry to be aware, but there can be no doubt of the interest which the Cossacks and their tactics have for military students in this country in particular, and the present time would appear to be opportune to again draw attention to the subject. The operations of war now commencing in the Far East will doubtless be fruitful in examples of the use of Cossacks, and we shall be able to compare their present efficiency with their past, as recorded in the pages of history. It is to be hoped that, in view of the kindred nature of our own native cavalry and of future possibilities, our officers of that arm will follow with intelligent interest the coming operations of the Cossacks, and it would doubtless be a measure of great utility if some officers of native cavalry could be despatched to the theatre of war for this purpose. The Cossack and native cavalry. the sowar have many qualities in common, as we learn from the history of both. There is the same capacity for war, the same astuteness, the same fine sense of eye and ear, the same power of endurance and mobility. Both have the faculty of procuring rations for themselves and horses where regular cavalry would starve, and a certain aptitude for marauding. Under European leaders who have acquired the men's confidence we find the propensity to pillage brought under control, and Count Benkendorff, who wrote of the Cossacks in 1816, shows that the Cossack also requires a leader from outside. He says:—"The rank of officer is ruin to a Cossack, because, independently of the most complete ignorance, he abandons himself to all the vices of a parvenu. As officers they become tyrants over their old comrades; they demand an account of the trophies and booty acquired by them; they expose them singly to a fire into which they abstain from leading them, only to free themselves from the responsibility to which the issue

of a combat and the loss of their men might expose them before the Hetman." Here the parallel is not so close and our native officers are now superior to this description of Cossack; but the latter has improved also.

Both races preserve in some degree all the inborn aptitude for war which has ever distinguished Parthian, Indian, and Numidian Cavalry, although it is open to question whether the value of both has not been diminished by the modern tendency to dragooning.

Suvoroff called the Cossacks "the eye of his army," an appellation that was well earned on many a campaign. Benkendorff tells us that "the

The eyes of the army. Cossack is born with that degree of activity, intelligence, and enterprise, that up to the rank of Non-Commissioned Officer he is unrivalled; but he degenerates immediately when he is pushed beyond his place into a higher grade. The Non-Commissioned Officers are the soul of a regiment of the Don, because they almost always obtain that advancement owing to their own merit." These remarks apply almost equally at the present day, although there is now some little education among the Cossacks.

He adds "during all the time I was employed with Cossacks, I knew but two officers who were really worthy of consideration, the one, Colonel Chernozuboff VIII, from his education, the other, Colonel I. Giroff; the latter grown hoary under arms in more than two hundred combats, reckons forty years of service and twelve wounds. He is a veritable type of an old hero, without fear and without reproach. During the year he served under me, I never knew him placed otherwise in an attack than thirty paces before his regiment." There

have been just such Native officers in our irregular cavalry, such as the famous Risaldar-Major Ahmed Bakhsh Khan, of the 3rd Cavalry, Hyderabad Contingent, who fought in a hundred fights, between 1840 and 1860, and who speared tigers, panthers and many bears on horseback. He is, now, at the age of ninety-three, still living to relate his deeds. Such, also, was Murteza Yar Jung, a Nawab, who was Native Commandant of the 2nd Nizam's Cavalry, of whom an officer wrote in 1845:—"He had more

Nawab Murteza Yar Jung. the character of a chivalrous leader of cavalry than is often to be found in these, parts—he brought into the Reformed Horse, on their first formation, five hundred men; he had strong claims on our support and protection, for when it became an object with the British Government to organise a body of cavalry for the defence of Berar and for operations against that common enemy, the Pindaris, when it was the object of Raja Govind Bakhsh (the Governor of Berar who subsequently rebelled) to counteract us in that purpose, and when he had assembled the commanders of horse and inquired "who would serve the English?" Murteza Yar Jung was the first to rise, and in full durbar, laying his hand on his sword, said that he volunteered to do so with heart and hand. He was true to his word; and till the day of his death, in 1830, he was ever the first in the post of danger,—setting an animating and cheering example to his men.

The majestic and soldierlike form and bearing of Nawab Murteza Yar Jung, attesting, through many a deep scar, the part he had sustained in well-fought fields, will hardly be forgotten by any who have seen this distinguished chief, and never by any officers of the Reformed Horse.* He was the first to rise in this assembly, and addressing himself to Raja Govind Bakhsh, its chief, said: "Listen Maharaj! You ask who will serve the English; I am a soldier of fortune; all I require is food for my men and corn for my horses, nor much of either. These, the English have never denied to those who have served them faithfully; and I am ready to serve them, and to march on the instant to Delhi, to Calcutta, or wheresoever they may command. All countries are alike to Murteza Yar Jung." In the

The Nizam's Cavalry. old days the Hyderabad Contingent Cavalry rode on *Koghirs* (native saddles), and averaged 13½ stone with full appointments. They would boot and saddle at an hour's notice, ride off a hundred miles, fight at the end of it, and return fresh to camp or cantonments with prisoners and booty. No man who was wounded in the back was ever promoted. It is not surprising that Lord Gough, Commander-in-Chief in India, declared them to be "the finest Irregular Cavalry in the World."

To return to the Cossacks, with whom they had many points of resemblance, Benkendorff, who cannot be quoted too often, tells us:—"There is another thing about which an officer, who is not a native Cossack himself need never trouble himself when placed in command of them, that is, the details of economy, above all, the interior arrangements. These people attach a great value to the antiquity of their old customs, as well as to their religious practices; both the one and the other are sacred to them. Never let any officers persuade you to introduce extraordinary innovations into the service; their proposals generally rest upon some secondary considerations which generally have more reference to private interest, than the good of the Emperor's service."

Again, "No troops are better adapted for night marches than Cossacks. Their sabre is firmly fixed into their girdle; they have no spurs; and, above all, there is not a piece of metal to ring or make the slightest noise against their arms or clothes; so, no noise being heard in their movements, it might be supposed that they were holding their breath." Such were our Indian Irregular

The Sowar. Cavalry before we hung them all over with ironmongery. In former days there were no regulations or fixed codes of field duties either for the Cossack or the Sowar, laying down how a thing was to be done, or how he was to act under any particular circumstances. He acted according to his understanding, relying on the inspirations of his own judgment, according to the degree of intelligence with which he was endowed; a source, the strength and abundance of which cannot be measured. He was in fact an individual and not an automaton.

The sense of hearing of the Cossack is almost supernatural. He will place his ear to the ground and hear a cannonade at twenty miles distance,

Qualities of the Cossacks.

*The Reformed Horse subsequently became the Hyderabad Contingent Cavalry.

seldom erring as to its direction. His sight is also perfect. Where one can discover only a black spot on the horizon, he will distinguish whether it be a foot-soldier, or Cossack, or regular horseman. In the latter case, the pace and movement of the head which distinguishes the horse of the Don, serve as an index. Benkendorff relates:—"No troops possess in a higher degree the art of bivouacking. The stars serve him as guides; footmarks and boughs of trees broken in a wood indicate the route taken by his comrades; there is hardly an example of a Cossack losing his way. One thing has always seemed to me incomprehensible, which is, the facility with which he manages to find a subsistence; where whole *corps d'armée*, on the side of the enemy, are dying of starvation, he contrives to get his soup and forage for his horse."

It is interesting to note that the Cossack has many oriental characteristics. A sealed letter is a sacred object to him, and rather than allow it to be taken from him, he will stand to be cut to pieces. If a small feather is placed under the seal, indicating it to be an urgent despatch, the Cossack will break down his horse rather than delay his mission for an instant. In India, a feather placed in the cleft of a stick indicates the necessity for haste on the part of a messenger.

The Cossacks do not now appear to be what they were at the commencement of the last century, when all Europe rang with their fame after the great part they played during the retreat of Napoleon's Grand Army in 1812. Nor is this surprising. Races of warlike people, all the world over, who have enjoyed a long period of peace and have turned their swords into ploughshares, must lose some portion of their military instincts. Inured to war in days gone by, for ever contending with the hordes of the Tartar Khans, sometimes defending their hearths and homes against their Eastern foes, at other times carrying the war into the enemy's country, continually engaged in frays, forays, and raids, the Cossacks became so far a warlike race, that so much of their lives as was not passed in actual campaigns was spent in military exercises. They lived to fight. From the Central Asian hordes they learnt those tactics which were subsequently employed so effectually in harassing an army composed of the flower of European chivalry, led by the greatest soldier the world has ever seen. But now all this is changed. The Cossack no longer goes forth to foray as in days of old. He lives a peaceable life on the land he cultivates for the support of his family, and when called out for military exercises, he no longer employs his ancient tactics, but is taught in the same manner as the regular troops, so that he has to some extent lost those special qualities which formerly distinguished him. Perhaps it is in fact, as many Russian officers think, this "dragooning" of the Cossack which has spoilt him, even more than a long period of peace.

An excellent irregular soldier has been transformed into an indifferent regular.

Some 25 years ago the regularisation of the Cossacks commenced. It was supposed that they were dying out, that there were no true Cossack left, and that it would be best to turn them into dragoons. The Russo-Turkish War of 1877 did not give them much chance of distin-

guishing themselves, but they should, on their little steppe ponies, be more useful in these days, when shock tactics are at a discount, particularly in the war with the Japanese, whose cavalry is admittedly inferior.

In days when he only did not rob and pillage who was not strong enough to do so, the Cossack was doubtless a robber, but in more modern times, although something of a freebooter, he was no worse than his contemporaries. With times of peace he became an agriculturist, and only the songs and traditions of his fatherland remind him that he belongs to a race of warriors by profession. We have seen much the same kind of degeneration set in in many parts of India, particularly in the South, where the *pax Britannica* has so long prevailed, and from whence the tide of war long since rolled to the North—never to return.

But it is probable that many of the Cossack's qualities remain, though latent, that his warlike spirit smoulders, and only awaits an opportunity to burst into flame. Perhaps the long campaign about to commence in Northern Asia will again bring the Cossack to the front, and his deeds may vie with those of his forefathers in 1812. The Cossack

Their training.

of old was a warrior by birth and education. He was the son and grandson of warriors, and with his first accents learnt to lisp of war.

From eight years of age the boys rode fearlessly over the steppe on half-wild, bare-backed horses. In the winter time they built snow forts, which they attacked and defended, armed with snow-balls.

On holidays they fired at marks, cut posts, and indulged in various warlike games, whilst the long evenings were passed in listening to tales of raids and adventures with which the veterans fired the spirits of their sons. Thus they did not require any elaborate training. They learnt from experience, and from the lips of the veterans when they gathered round the camp fire on their way to the seat of war. They were armed with guns of various calibre, with swords, spears, and pistols; all of which weapons they knew well how to wield. Now they bear the most modern equipment.

The parallel with our old Native Irregular Cavalry is here very close. The chieftains of seventy to a hundred years ago—such as Mur-

Indian irregular cavalry.

teza Yar Jung and Ahmed Bakhsh Khan—brought with them to the ranks, from a hundred to five hundred horse, comprising all their adherents. The younger generation came too, lived with their fathers and learnt early to ride and to wield their arms, and at times accompanied them in the field, or in the chase of the great wild beasts with which the country abounded.

The tactics of the Cossacks have been frequently described, but will bear recapitulation. Benkendorff, writing in 1816 from many years of

Cossack tactics.

experience, said:—"The detail of the Cossack movements is well known and very simple. They generally march in sections of threes. The squadron standards are united at the head of the column; the squadron leaders in front, and the other officers on the flank. In deploying they

form up in single rank, which is, consequently, of great extent, and generally describes a curve, the extremities of which, where the best of soldiers are generally placed, outflank the enemy. These picked men decide the success of the attack, and, in case of retreat, form a rear guard. A close column is reformed on the centre, with the rapidity of lightening, and almost without word of command. If the ground is open, the retreat is effected by alternate movements, and each man knows admirably the right moment for facing about and dashing at the enemy ; at the same time is heard a low wild cry fitted to the occasion.....Rapidly of movement is the basis of Cossack tactics for which they have this great advantage, that the amble of their horses is equal to a good gallop ; their walk is also extremely quick, and the longer the march, the quicker it becomes. You may reckon upon their doing an ordinary German mile in an hour."

The Reformed Horse (afterwards Hyderabad Contingent) was

Training of the Reformed Horse.

trained on much the same lines by Captain Evan Davies, their first British Commander, who wrote in 1816 :—" The matchlock was laid aside as being of no use on horseback ; on the contrary, it invariably discovered our march to the enemy at night. Employed as we were without infantry, and being frequently obliged to act on foot, I procured English carbines for one-third of the men ; the remainder I armed with a pistol, spear, and sword each. As, however, they had always been in the habit, under their own chiefs, of marching in one long, loose, extended line, it was absolutely necessary to teach them to wheel by threes, and to form line in any given direction. This they soon acquired.....The carbineers are taught to skirmish on foot and on horseback, and are excellent marksmen. They are also taught the use of the sword, agreeably to the Native mode.

The spearmen are taught the Native spear exercise and to skirmish on horseback.

The Risalas are told off into squadrons for field exercise ; and are merely taught to change position on a flank, by bringing forward or throwing back a wing ; form close column of squadrons ; form line from ditto ; attack to the front both by squadrons and in line ; retire in line by alternate half-squadrons. The above is all they have attempted, as more attention has been paid to their using their arms well, singly as skirmishers, than to making them "regular troops." Thus was individuality inculcated and fostered.

It was found that the regular British Cavalry could not come to

The Pindaris.

terms with the Marathas and Pindaris, who thought little of a hundred mile march, such was their mobility, and it was to contend with these elusive banditti, that the Reformed Horse was organised. An eye witness of the battle of Mahidpur (1817) wrote :—" We could see the Pindaris flying like the wind, at a considerable distance off, our cavalry having no chance with these fellows, even on an open plain. The Pindaris, unencumbered with accoutrements, heavy saddle, etc., will gallop round and round the most active of our troopers ; and his very horse seems to partake of the master's

cunning and dexterity, and to know exactly the moment for a quick and timely retreat."

In the same manner did the Cossacks gallop round and harass the heavy French dragoons and cuirassiers in 1812-14.

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The Cossack *lava*.

made to revive them, with what success will doubtless be seen in the coming campaign. At that time I gave a very full account of their mode of operations in an article in a home magazine.* This account may here be conveniently reproduced in some of its details. Their principal tactical formation, if formation it can be called, was the celebrated Cossack *lava*, which is somewhat difficult to describe, as it varied according to circumstances. This mode of operations was, it is said, learnt from the Tartar hordes of Ghengiz Khan and Tamerlane, from the bitter experience of many a bloody fight. The Maratha Horse, famous in days gone by, employed very similar tactics.

The *lava* was not a regular formation, but a kind of national tactics, having no fixed order, subject to no rules or words of command, but varied according to circumstances. The regiment was massed together, or stood in masses of *sovnias*, according to the orders of the commandant, the front generally occupying a considerable extent of ground. Each Cossack attached himself to his *uriadnik* or non-commissioned officer; each *uriadnik* kept his eye on his *sovník* or centurion; and all followed the standard of the commandant or that of the *stanitsa* or Cossack village. The scouts gave information of the enemy's approach; the regimental commander called up his *sovniks*, explained his intention regarding the attack, and told them how to fire, whether from horseback or on foot; and notified what signals he would give. The *sovniks* repeated the instructions to the cornets and *uriadniks*, and the latter to the Cossacks.

Sometimes, after this explanation, when already in sight of the enemy, the commandant would address his Cossacks, calling upon them to attack the enemy boldly, and not put their commander to shame. And they would reply with one voice that they would gain him honour or die—a promise that was invariably fulfilled. Apparently, the regiment listened to the commander's speech, broken up into groups, and then, inspired by his words, they quickly turned and deployed into a long extended line with flanks thrown forward, ready to attack or commence their manœuvres as the case might be. The *lava* was varied in form, and had far other appearance than that of an attack in extended order, yet it was attended by neither anarchy

nor chaos. Writing in 1812, Marshal Moran said:—"We (the French Cavalry) deploy, and boldly advance to the

attack, and already reach their line; but they disappear like a dream

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and we see only the bare pines and birch-trees. An hour later, when we have begun to feed our horses, the dark line of Cossacks again appears on the horizon and we are again threatened with an onslaught. We repeat the same manœuvre, and, as before, our operations are not attended with success. Thus one of the best and bravest cavalry forces the world has ever seen, was tired out and disorganised by those whom it considered unworthy foes, but who were the real saviours of their country."

Of them also Bronzevski wrote:—"In the day of trial, glorious for Russia, but fatal to Napoleon and France, the Don Cossacks stood in the first rank of the defenders of their country. The great deeds performed by them in the war of the fatherland, form the golden epoch of their history, and surpass all the glory and renown won by them in former campaigns."

On the 7th October 1812 Murat wrote:—"My position is terrible.It is impossible to forage without great risk of being captured by the enemy; not a day passes that I do not lose some two hundred men. How will this end?" And this hopeless state of affairs was due to the harassing operations of the Cossacks.

Now-a-days the Cossacks are combined with regular cavalry, and may prove even more serious adversaries than the French found them in 1812, for they have a knowledge of the movements of regular troops as well as of their own manœuvres. They may harass the enemy's cavalry, draw them on to the attack, and "disappear like a dream," but in their place will be seen not merely "bare pines and birch-trees" but threatening squadrons of heavy cavalry, fresh and ready to attack the disordered and exhausted pursuers of their Cossack comrades. As has already been remarked, it will be interesting to keep a watch upon their movements in Manchuria and Korea. And should the day arrive when our own troops are brought into contact with them, we need not fear for the result, with our native light cavalry, who bear so much resemblance to them, and who, when properly trained, are so peculiarly suited to contend with their manœuvres.

THE BEST WAY OF TRAINING OFFICERS FOR EMPLOYMENT AS RAILWAY STAFF OFFICERS, MORE ESPECIALLY ON INDIAN RAILWAYS.

(A military view)

BY CAPTAIN C. C. R. MURPHY, 2ND SUFFOLK REGIMENT.

The British Army could never be honestly condemned for not trying to lay to heart the lessons taught by its campaigns, notwithstanding the fact that we are nearly always engaged in war in some part of our Empire, and have, therefore, a great many lessons to learn. We might, however, with more justice be accused of laying the old ones on one side as soon as the new ones are set before us, and in some cases even of forgetting them altogether. Our lessons have been varied indeed. From the Zulus we learnt how to defend ourselves against the horned *impi* of savages; and from the Afghans how to meet the well-armed and reckless Ghazi swarm.

The campaigns on the North-West Frontier have taught us how to fight in the hills, and how to turn the sniper out of his sangar. In the jungles of Burma we found out the difficulties of storming the panjied stockade; and on the treeless plains of South Africa we have been taught to respect the scraggy pony and the repeating rifle. Long before the second Afghan War broke out, however, the lessons taught by Generals Pollock and Nott had been forgotten; and when the expedition started for Chitral, the lessons of that campaign had been forgotten too. And so it was with Egypt. The campaigns in that country had clearly shown the importance of railways; and yet, strange to say, when the doors of the temple of Janus were thrown open in October 1899, we found ourselves, in this respect, almost wholly unprepared.

It is a remarkable thing that the Franco German War, which has been worn almost thread-bare by English tacticians, was not held up to us in this particular, although in its connection with railways it is not so much out of date as it must be admitted to be in many other matters.

The long and irksome lesson we have just had in South Africa is one we could hardly forget. From a military point of view, and particularly with regard to railways, it was a unique and invaluable experience, and one which must have placed us, in this respect, far ahead of any other nation in the world.

It is not sufficient, however, to let the matter rest there, or merely to assign to railways, in our books, a position of commanding importance. We have done that before in Egypt. We must, on the other hand, organise, in peace time a system—a rare commodity with us—by which railways in war can be worked to the fullest advantage to military requirements.

It would be the first care of a General Officer in war time to ensure an uninterrupted service of trains along his lines of communication. The railway is the vital current of modern war ; it is the life-line on which the forces at the front have to depend. It would never do, therefore, to allow the working of it to be hampered by indiscriminately pitch-forking officers, whether qualified or not, into railway appointments. As the outcome of necessity, this had to be done in the last war, because there were in the whole army no such persons as trained Railway Staff Officers, except a very limited number in the Royal Engineers. To obviate a recurrence of this state of affairs, it will be necessary to organise classes of instruction, so that a number of officers can be trained to fill these posts ; and in neglecting to do so, the Army in India would be incurring the gravest responsibility, besides assuming an altogether untraditional attitude.

In an interesting article which appeared in the last issue of the Journal of the United Service Institution of India, the important question of how to train the Railway Staff Officer was dealt with for the first time in these pages. The facts therein set forth seem, however, to have been based upon the somewhat limited experience of one of our frontier expeditions, but they apply nevertheless to conditions with which we are perhaps most likely to be brought in contact. The author confines himself to considering the duties of the Railway Staff Officers during mobilisation, that is, when the railway is being worked by its own officials under peace conditions. He asserts that the possibility of the control and management of any Indian Railway ever passing entirely into the hands of the military authorities, whether in peace or war, is so remote, that even in this connection the need for dealing with it does not arise. With this remark, he lets the most difficult side of the question drop. But the "manœuvre map" for the Indian army is not confined to India alone, and the necessity might well arise for them to seize and work railways in an enemy's country ; and for such emergencies as these the Railway Staff Officer would surely have to be trained. The author goes on to say that past experience has shown the co-operation of the Railway Staff Officer to be in no way essential to the successful issue of a railway official's work in dealing with a mobilisation of troops. That is, however, not the opinion of any single military Power. The services of the Railway Staff Officer were found necessary as long ago as the Franco-German war ; and they were employed all over the country in South Africa, from the beginning of the war until the end. What the past experience is that is referred to, is not quite clear. On the contrary, the absolute necessity for Railway Staff Officers is everywhere recognised. Railway officials regard with jealousy the necessary assumption of authority by the military in the time of war. They are hard indeed to convince that their interests must then be subordinate to military requirements. They look upon troop-moves which are ordered without due warning as interference ; and they denounce a cancellation of orders as abandoned mismanagement. Until, however, we can change the characteristics of war, such things will occur, and must be taken into account.

The proposal to give railway officials temporary military rank would never obtain any support from the military authorities. Such a measure would probably lead to nothing but obstruction, and would be in every sense an undesirable one. The further suggestion of getting out of difficulties by wiring direct to the Commander-in-Chief for a decision, is also one that would be viewed with disapproval. During the South African war, any Railway Staff Officer requiring an immediate ruling on any point, either communicated with the Deputy Assistant Director of Railways for instructions, or more usually he gave his decision and then reported to that officer by wire what had been done.

The writer, in stating that hitherto the Railway Staff Officer has had nothing to do with the movement of Commissariat Stores, Ordnance Stores, and Transport, refers of course to mobilisation in India only. Whenever a railway is being worked in an enemy's country, however, three-quarters of the Railway Staff Officer's work will come under these headings, so that the idea of their not forming part of his instruction must not be allowed to gain ground.

Classes for the instruction of officers in the duties connected with Railway Staff work should be assembled during the trooping season at convenient centres where there are frequent troop movements, and there is at least a fair amount of military goods traffic. The instructors should be first of all selected from those who have had continuous experience in the work on active service, and who have been well reported on by the railway authorities under whom they served. Afterwards they might be chosen on account of proficiency shown during their instruction.

So much for the centres and the instructors ; and now about the classes themselves. In order to get the best results, it should be carefully pointed out to Commanding Officers, when recommendations are being called for, that officers should be selected for these classes with special regard to their patience, tact and courtesy, which are the cardinal virtues of a Railway Staff Officer ; and that lacking them, they can never be of the slightest use to the public service in this capacity. Too much stress cannot be laid on this point. An officer, who has been accustomed to command a company, will find the duties of a Railway Staff Officer on active service most exasperating. He has no longer any authority ; he is merely a go-between. He must protect the interests of the railway against military high-handedness ; and yet he must take care that nothing shall ever stand in the way of military requirements. He will frequently have to report senior officers for such offences as commandeering the plate-layer's trolley ; and sometimes he will have to order a General Officer out of the brake-van for having filled it up with his own kit to the exclusion of the guard. In the South African war these were daily occurrences, and trying though they were, the obstructions caused by the running staff of the train were often worse. The Railway Staff Officer, for instance, would perhaps receive a " clear-the-line " message to the effect that a certain train was to proceed to X Junction. Perhaps it contained the breech-blocks of some guns that had been sent through the day before, and which were required for immediate use. When the train

arrives at his station, the Railway Staff Officer would inform the Station-master that it was to proceed to X Junction. The driver, having been on the foot-plate for some hours, perhaps wished the train to stable where it was, and immediately discovered something wrong with the ejector, and said he could not get vacuum; he would, as an additional precaution, rake his fire out, and smash his gauge-glasses. It was quite easy for him to bluff the traffic authorities in this way, so the train stabled where it was, the driver remained master of the situation, and the Railway Staff Officer went to the wall. This, however, was a less frequent vexation than the former, and only happened occasionally.

Every officer, who was important enough to have a coach of his own, would walk into the Railway Staff Officer's office and *demand* that it was to be put on to a certain train, regardless of all railway considerations. If the coach could not be put on to the particular train desired, the Railway Staff Officer was at once reported for insolence and incompetency, so that he had either to fall foul of the officer, or the station-master. These few instances, which by the way are real and not hypothetical, will justify the necessity of very careful selection of officers for these classes.

With a view to facilitating the instruction of the classes, the railway authorities at the centres selected might be approached as to the possibility of placing at their disposal some small room or apartment in the station premises. Although much of the work would be of a practical nature and carried on in the yard itself, this would be of a very great convenience.

In the article previously referred to, it was suggested that the course of instruction should last six months and that the time should be spent between the offices of the Railway District Superintendent and of the Examiner of Commissariat Accounts. It is at least doubtful whether an officer so trained would be of much assistance to the Railway officials or to the Military; and it is quite certain that no Commanding Officer would be willing to let any of his officers be away, unseconded, for so long. A Railway Staff Officer who had learned his work entirely inside an office, would be like a recruit who had learned his drill in the orderly room, and had never been on the square.

Officers, as a rule, know nothing of railways, and therefore this practical introduction to the mysteries of railway working, in the yard itself, would be of the greatest value.

The following is a rough syllabus of the work to be got through by a class, before those under instruction were sent to the office of Railway District Superintendents:—

- (a) Technical terms; details about rolling-stock; uses of the different kinds of trucks.
- (b) The various railway departments and the work of each.
- (c) The position of a Railway Staff Officer; his relations with the railway staff and with his Commandant.
- (d) The entraining and detraining of troops.
- (e) Military goods traffic; the loading and off-loading of warlike stores and animals.

- Although most of this would be practical work, the instruction under the headings (c), (g) and (4) might be given in the form of lectures, the last heading being also treated practically.

These points were all dwelt upon in the pamphlet entitled the "Working of Railways" issued to those concerned in the Army in South Africa.

I.—Personnel.

II.—Animals.

III.—Carts ... { 2-wheeled.
 { 4-wheeled.

IV.—Guns.

V.—Wagons ... Ox, mule, or other.

VI.—Supplies.

On receipt of the return containing these details, he will lay it before the Station-master, who will initial and return it, when it will be filed in the office of the Railway Staff Officer. He will thus be able to ensure a completeness of form in presenting his demands.

As much time as possible should be spent in the station yard, as it will accustom the class to the ways and duties of railway officials, and they will, by this means, acquire information which, though not directly bearing on their duties as Railway Staff Officers, will afterwards

It would be the first care of a General Officer in war time to ensure an uninterrupted service of trains along his lines of communication. The railway is the vital current of modern war; it is the life-line by which the forces at the front have to depend. It would never do, therefore, to allow the working of it to be hampered by indiscriminately pitch-forking officers, whether qualified or not, into railway appointments. As the outcome of necessity, this had to be done in the last war, because there were in the whole army no such persons as trained Railway Staff Officers, except a very limited number in the Royal Engineers. To obviate a recurrence of this state of affairs it will be necessary to organise classes of instruction, so that a number of officers can be trained to fill these posts; and in neglecting to do so, the Army in India would be incurring the gravest responsibility besides assuming an altogether untraditional attitude.

In an interesting article which appeared in the last issue of the Journal of the United Service Institution of India, the important question of how to train the Railway Staff Officer was dealt with for the first time in these pages. The facts therein set forth seem, however, to have been based upon the somewhat limited experience of one or two frontier expeditions, but they apply nevertheless to conditions which we are perhaps most likely to be brought in contact with. The author confines himself to considering the duties of the Railway Staff Officers during mobilisation, that is, when the railway is being worked by its own officials under peace conditions. He asserts that the possibility of the control and management of any Indian Railway ever passing entirely into the hands of the military authorities, whether in peace or war, is so remote, that even in its connection the need for dealing with it does not arise. With this remark, he lets the more difficult side of the question drop. But the "manœuvre man" of the Indian army is not confined to India alone, and the necessity may well arise for them to seize and work railways in an enemy's country and for such emergencies as these the Railway Staff Officers will surely have to be trained. The author goes on to say that past experience has shown the co-operation of the Railway Staff Officer to be in no way essential to the successful issue of a railway officer's work in dealing with a mobilisation of troops. That is however, not the opinion of any single military Power. The services of the Railway Staff Officer were found necessary as long ago as the Franco-German war; and they were employed all over the country in South Africa from the beginning of the war until the end. What the past experience is that is referred to, is not quite clear. On the contrary, the absolute necessity for Railway Staff Officers is everywhere recognised. Railway officials regard with jealousy the necessary assumption of authority by the military in the time of war. They are hard indeed to convince that their interests must then be subordinate to military requirements. They look upon troop-moves which are ordered without due warning as interference, and they denounce a cancellation of orders as abandoned mismanagement. Until, however, we can change the characteristics of war, such things will occur, and must be taken into account.

The proposal to give railway officials temporary military rank would never obtain any support from the military authorities. Such a measure would probably lead to nothing but obstruction, and would be in every sense an undesirable one. The further suggestion of getting out of difficulties by wiring direct to the Commander-in-Chief for a decision, is also one that would be viewed with disapproval. During the South African war, any Railway Staff Officer requiring an immediate ruling on any point, either communicated with the Deputy Assistant Director of Railways for instructions, or more usually he gave his decision and then reported to that officer by wire what had been done.

The writer, in stating that hitherto the Railway Staff Officer has had nothing to do with the movement of Commissariat Stores, Ordnance Stores, and Transport, refers of course to mobilisation in India only. Whenever a railway is being worked in an enemy's country, however, three-quarters of the Railway Staff Officer's work will come under these headings, so that the idea of their not forming part of his instruction must not be allowed to gain ground.

Classes for the instruction of officers in the duties connected with Railway Staff work should be assembled during the troopng season at convenient centres where there are frequent troop movements, and there is at least a fair amount of military goods traffic. The instructors should be first of all selected from those who have had continuous experience in the work on active service, and who have been well reported on by the railway authorities under whom they served. Afterwards they might be chosen on account of proficiency shown during their instruction.

So much for the centres and the instructors ; and now about the classes themselves. In order to get the best results, it should be carefully pointed out to Commanding Officers, when recommendations are being called for, that officers should be selected for these classes with special regard to their patience, tact and courtesy, which are the cardinal virtues of a Railway Staff Officer ; and that lacking them, they can never be of the slightest use to the public service in this capacity. Too much stress cannot be laid on this point. An officer, who has been accustomed to command a company, will find the duties of a Railway Staff Officer on active service most exasperating. He has no longer any authority ; he is merely a go-between. He must protect the interests of the railway against military high-handedness ; and yet he must take care that nothing shall ever stand in the way of military requirements. He will frequently have to report senior officers for such offences as commandeering the plate-layer's trolley ; and sometimes he will have to order a General Officer out of the brake-van for having filled it up with his own kit to the exclusion of the guard. In the South African war these were daily occurrences, and trying though they were, the obstructions caused by the running staff of the train were often worse. The Railway Staff Officer, for instance, would perhaps receive a "clear-the-line" message to the effect that a certain train was to proceed to X Junction. Perhaps it contained the breech-blocks of some guns that had been sent through the day before, and which were required for immediate use. When the train

arrives at his station, the Railway Staff Officer would inform the Station-master that it was to proceed to X Junction. The driver, having been on the foot-plate for some hours, perhaps wished the train to stop where it was, and immediately discovered something wrong with the ejector, and said he could not get vacuum on; he would, as an additional precaution, rake his fire out, and wash his gauge-glasses. It was quite easy for him to bluff the traffic authorities in this way, so the train stopped where it was, the driver remained master of the situation, and the Railway Staff Officer went to town. This, however, was a less frequent vexation than the former, and only happened occasionally.

Every officer, who was important enough to have a coach of his own, would walk into the Railway Staff Officer's office and *demand* that he was to be put on to a certain train, regardless of all railway considerations. If the coach could not be put on to the particular train desired, the Railway Staff Officer was at once reported for insolence and incompetence, so that he had either to fall foul of the officer, or the station-master. These few instances, which by the way are real and not hypothetical, will justify the necessity of very careful selection of officers for these classes.

With a view to facilitating the instruction of the classes, the railway authorities at the centres selected might be approached as to the possibility of placing at their disposal some small room or apartment in the station premises. Although much of the work would be of a practical nature and carried on in the yard itself, this would be of a very great convenience.

In the article previously referred to, it was suggested that the course of instruction should last six months and that the time should be spent between the offices of the Railway District Superintendent and the Examiner of Commissariat Accounts. It is at least doubtful whether an officer so trained would be of much assistance to the Railway officials or to the Military; and it is quite certain that no Commanding Officer would be willing to let any of his officers be away unseconded, for so long. A Railway Staff Officer who had learned his work entirely inside an office, would be like a recruit who had learned his drill in the orderly room, and had never been on a square.

Officers, as a rule, know nothing of railways, and therefore a practical introduction to the mysteries of railway working, in the yard itself, would be of the greatest value.

The following is a rough syllabus of the work to be got through by a class, before those under instruction were sent to the office of the Railway District Superintendent:—

- (a) Technical terms; details about rolling stock; uses of the different kinds of trucks.
- (b) The various railway departments, and the work of each.
- (c) The position of a Railway Staff Officer; his relations with the railway staff and with his Commandant.
- (d) The entraining and detraining of troops.
- (e) Military goods traffic; the loading and off-loading of warlike stores and animals.

- Although most of this would be practical work, the instruction under the headings (c), (g) and (4) might be given in the form of lectures, the last heading being also treated practically.

These points were all dwelt upon in the pamphlet entitled the "Working of Railways" issued to those concerned in the Army in South Africa.

II.—Animals.

IV.—Guns.

V.—Wagons ... Ox, mule, or other.

VI.—Supplies.

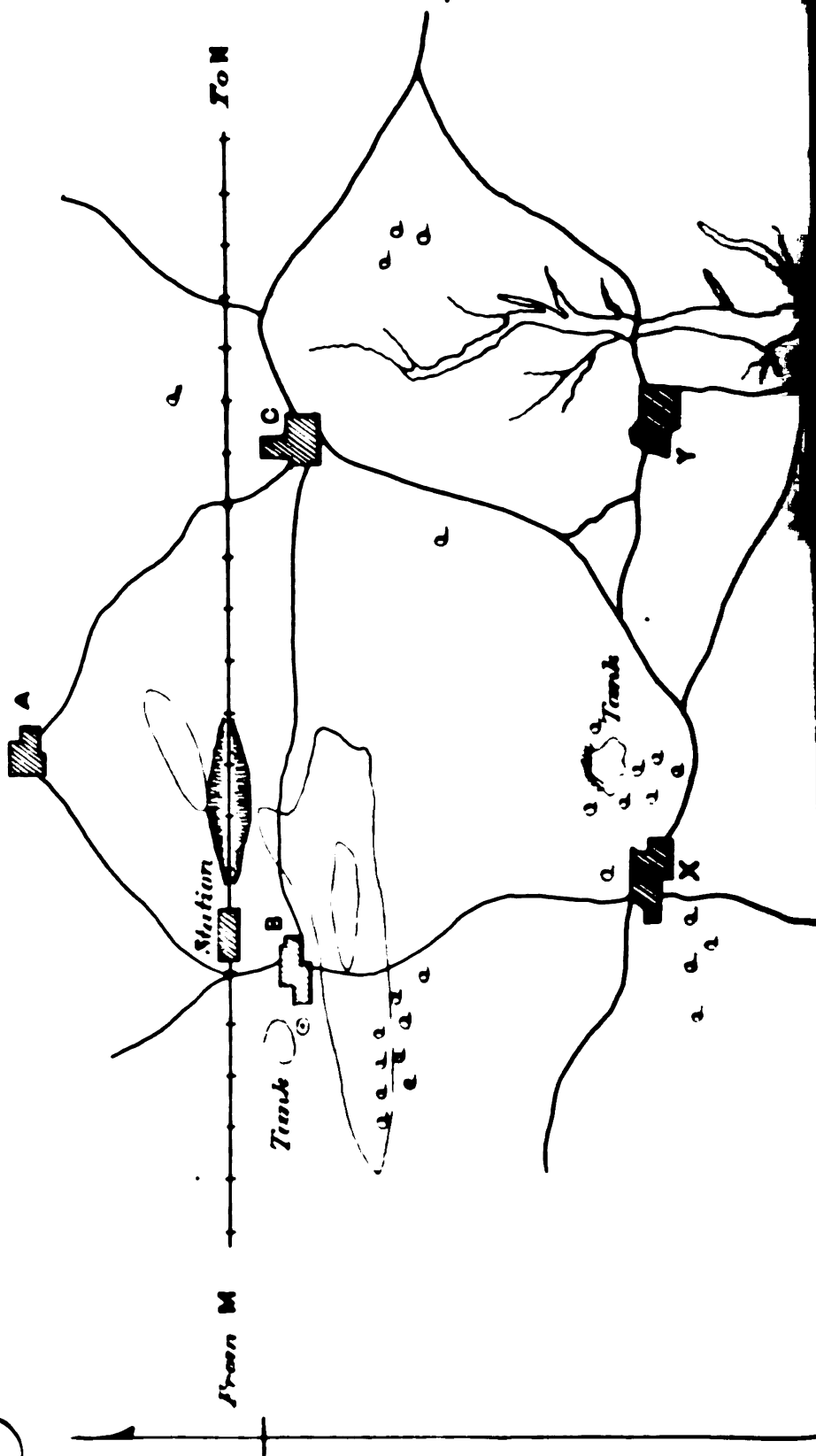
As much time as possible should be spent in the station yard, as it will accustom the class to the ways and duties of railway officials, and they will, by this means, acquire information which, though not directly bearing on their duties as Railway Staff Officers, will afterwards

be of great use to them and may save them from doing what is *ultra vires*, and from grounding upon those shoals which they will at first find such a difficulty in avoiding.

At the conclusion of the course, which ought to last a month or six weeks, there ought to be an examination held somewhat on the lines of that of a school of musketry, and the officers under instruction might then be put into the offices of District Traffic Superintendents for another month or six weeks, after which they ought to be competent to become Assistant Railway Staff Officers.

When once a start has been made, the most suitable method of instruction will be quickly evolved from it ; but unless that start is made before long, we may find ourselves still unprepared upon the threshold of another campaign.

TO ILLUSTRATE A MILITARY GLOSSARY
by Major E. E. Norris, R. F. A.



A MILITARY GLOSSARY.

By MAJOR E. E. NORRIS, R.F.A.

It is a recognised fact in modern war that it is impossible for a General to personally command the troops under him when they are engaged in manœuvres against an enemy, and still more so when they are actually engaged in battle. He must leave the execution of his ideas to many subordinate leaders. Therefore it is a recognised principle in these days that his orders must very clearly convey to these subordinates exactly what he wants to have done. They must be precise. At the same time, subordinates very often—generally in fact—have to carry out these orders with regard to circumstances, consequently such orders must not set too many limitations to their action. Hence, orders must be concise, for verbose orders can only cause confusion. A long order is far more likely to be ambiguous than a short one, provided the words used in the latter are clear and have an unmistakeable meaning.

Again, though orders must be precise without limiting the discretion of the subordinate too much, this compromise must at times incline more to one extreme than to the other. There are occasions when orders must be absolutely precise, there are others when the superior must leave a wide discretion to his subordinates.

I therefore suggest that it would be advantageous if certain words commonly used in orders were given definite technical meanings. Every scientific art has its technical expressions—most definite in the meanings they convey—and I only suggest that this system be applied to the scientific practice of war. The glossary need be very brief, but I do not pretend in this paper to exhaust all the words which might be included. I give sufficient examples to show what I mean, and I then give an example of orders which I submit are more precise and concise by the use of these words—with their special technical meanings—than they could be if written in ordinary English, less adjectives and adverbs and other safeguards against ambiguity being required to clearly expound the Commander's intentions.

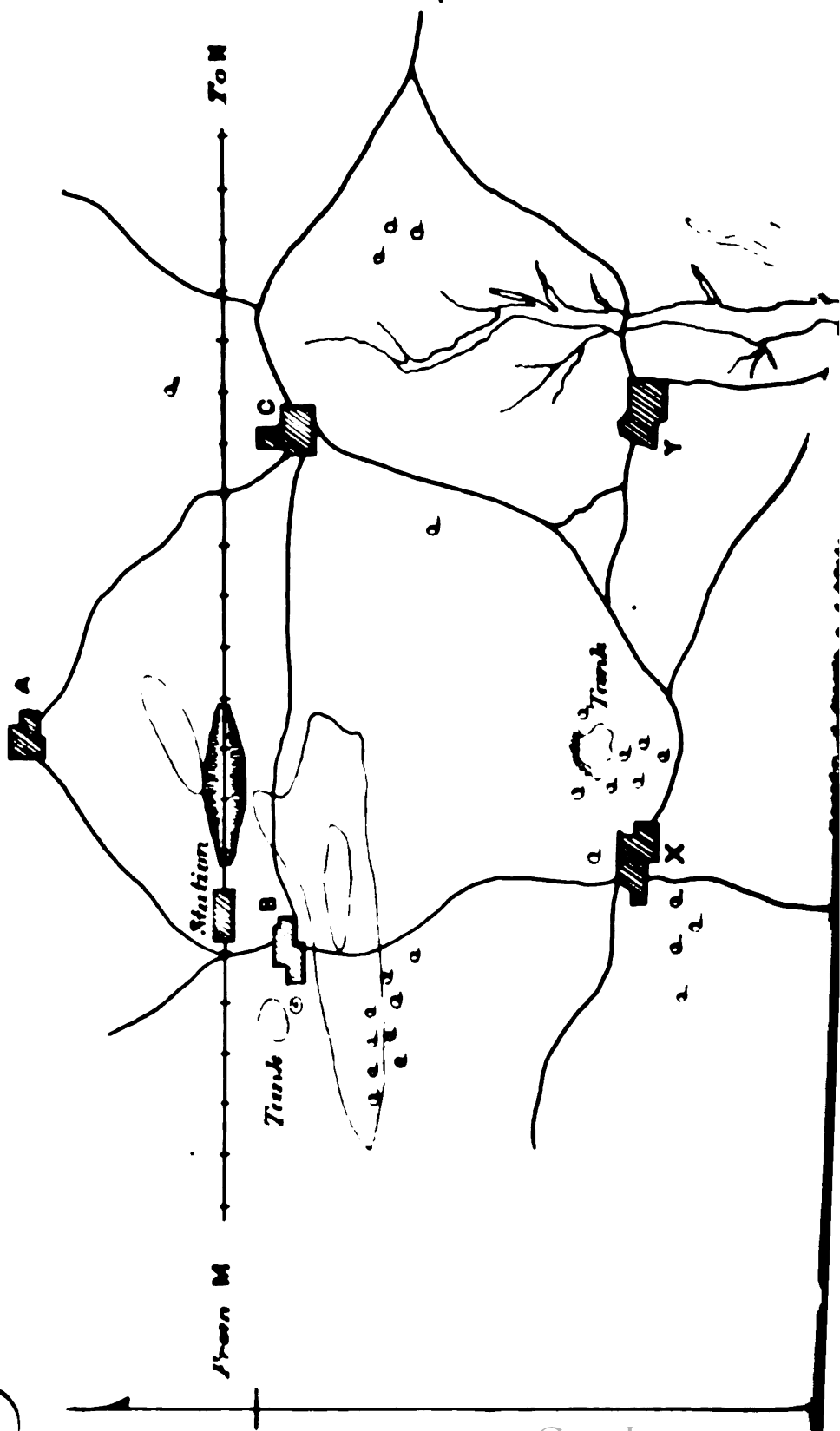
SPECIMENS.

Combat expressions.

ATTACK.—Attack in force with the intention of either driving an enemy in confusion from his positions, or defeating him in them.

CONTAIN.—Attack sufficiently to completely engage an enemy, and keep him to his positions, without risking a close engagement.

OBSERVE.—Engage an enemy sufficiently to keep in touch and be able to act suitably in the event of his taking any action.



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Security expressions.

EXAMINE.—Thoroughly investigate an enemy's dispositions either by means of scouts, spies, or patrols, taking considerable risks, if necessary, in the process.

RECONNOITRE.—Find out all that is possible of an enemy's position chiefly from outside his lines, and taking far less risks than in "examining."

WATCH.—Observe, as with outposts.

Attack expressions.

SUPPORT.—Continue and carry on an operation assigned to another unit, the Commanding Officer of the supports assuming general command.

REINFORCE.—Hand over more troops to the Officer Commanding a unit engaged in an operation.

CO-OPERATE.—Operate with the same objective as another unit, in unison but separately.

SUSTAIN.—Assist another unit in its operation indirectly, by operating against some other part of a hostile force. (This is a term new in orders.)

Defence expressions.

OPPOSE.—Conduct an active defence, ready at any moment to take the offensive.

RESIST.—Conduct an active defence, but with the ultimate intention of withdrawing.

DETAIN.—Conduct a passive defence.

Retreat expressions.

RETIRE.—Draw back as slowly as possible, fighting all the time.

WITHDRAW.—Draw back with as little fighting as possible.

RETREAT.—Run away collectedly!

Relative expressions.

WILL DO SO AND SO.—An emphatic order, the subordinate being adequately supplied with troops to carry out a definite operation.

WILL ENDEAVOUR TO DO SO AND SO.—This at present would be an unsound order, but the meaning I would wish it to convey is: I am not certain whether, under the circumstances, you can do so and so.—I am not fully cognisant of the circumstance, but you should be. I leave the matter to your judgment, do so and so if there is a reasonable probability of success. If not, do the next best thing and report fully to me.

WILL PRETEND TO DO SO AND SO.—Make dispositions and demonstrations likely to lead your enemy to suppose you intend to do so and so.

More relative expressions.

IS SO AND SO.—There is no doubt; reliable information has been obtained, or, "examination" has been made.

IS EVIDENTLY SO AND SO.—There is good reason to believe, but no certainty.

IS APPARENTLY SO AND SO.—There is some ground to think, but very possibly it may not be so, so take nothing for granted.

The above expressions will show the lines on which I suggest that a glossary might be compiled. There are no doubt a few more which might be adopted as technical military words or expressions, but the matter is one which would require most careful consideration. The glossary might then be embodied in "Combined training," but should certainly not be lengthy.

I will now write out orders for an attack by an English army corps on an enemy in position, to illustrate the use of such terms.

Our army corps is at A (1st Division and corps troops), B (2nd Division) and C (3rd Division); the enemy are to the south.

CORPS ORDERS BY GEN. Q.

At A 7 P. M., 3-2-07.

No. 117,

I. Late this afternoon the enemy occupied (1) X and Y. X has been examined (2) and is evidently (3) held by six battalions, 48 guns and about 300 sabres. Apparently (4) Y is also held in strength.

Our 2nd Army Corps has (5) occupied N (17 miles from C).

Notes on paragraph 1.

(1) No qualification. This is a fact. (2) All is known about the state of affairs at X. (3) There are good grounds for asserting these precise numbers, though they may not be absolutely accurate. (4) Less is known about the situation at Y. (5) Further reliable information.

II. The enemy will be attacked (6) at dawn tomorrow (6-10 A M.).

Note on paragraph 2.

(6) The General Officer Commanding evidently believes he has reasonable hope of success, and definitely decides to "attack" and defeat the enemy.

III. The Officer Commanding outposts 3rd Division, will at once and during the night reconnoitre (7) the enemy at Y. One squadron, corps cavalry regiment, will be added to his force. He will also at dusk push forward his outpost line as far as possible to watch (8) the enemy.

Notes on paragraph 3.

(7) Reconnoitre, that is, find out all he can without taking many risks. (8) That is, no kind of an engagement must be risked.

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(7) Reconnoitre, that is, find out all he can without taking many risks. (8) That is, no kind of an engagement must be risked.

IV. The 2nd Division will deliver the main attack. (9) It will be in its position of deployment by 5-30 A.M. It will attack (9) X from B, its left being directed on the tank north-east of X. The corps artillery (except R. H. A.) and such Royal Engineer units as the General Officer Commanding 2nd Division may require, will reinforce (10) his command at 5 A. M.

Notes on paragraph 4.

(9) Definite orders, (10) that is, for the time come under his orders absolutely.

V. The 3rd Division will at dawn pretend (11) to attack Y, and subsequently contain (12) the enemy east of X tank with as few troops as possible. The rest will be detailed under a Brigadier to co-operate (13) with the 2nd Division.

Notes on paragraph 5.

(11) (12) and (13) all quite definite orders. This paragraph could certainly not be so concise with these words not used technically.

VI. The 1st Division (less its Field Artillery with an escort) will assemble at 5-30 A.M. north of B, near the railway crossing, and be the reserve. Its Field Artillery will, till further orders, co-operate (14) with and on the right of the 2nd Division.

Notes on paragraph 6.

(14) This does not place them under the orders of the General Officer Commanding 2nd Division, though the Officer Commanding would naturally select targets in accord with the General Officer Commanding and if ordered to rejoin his own Division would naturally also inform the General Officer Commanding 2nd Division.

VII. The Mounted Corps troops including Royal Horse Artillery under Colonel K. will sustain (15) the main attack by operating to the west and if possible the south of X.

Notes on paragraph 7.

(15) This shows Colonel K. he is not to join in the main attack but to indirectly assist it, either by "opposing" counter-attacks, or other operations.

VIII. Other units not detailed will join the reserve.

IX. Baggage will remain north of the railway line.

X. The General Officer Commanding will be on the high ground south-east of B by 5-30 A.M.

By order,

S. T.

D. A. G.,

1st Army Corps.

These orders, it is felt, sufficiently illustrate the technical use of the words I have suggested. Ambiguity is avoided without the orders being prolix, and yet they are very precise. Even if General Q. were to adopt more complicated tactics, I think his Deputy Adjutant General would be able to express his wishes more concisely by using some such technical expressions than he could without, and the simpler military machinery is, the more easily will it run.

SCHEMES FOR THE RE-ORGANIZATION OF NATIVE CAVALRY REGIMENTS.

BY COLONEL C. S. WHEELER, 6TH (P. W.) CAVALRY.

With the existing organization, when a regiment of Native Cavalry is ordered on active service, the difficulty of leaving a *depôt* behind, that can be of any value as a means of replenishing the losses either in men or horses of the squadrons at the front, is well known. In fact, it is not overstating the case to say that it cannot do so. The following schemes are, therefore, submitted with a view of erasing this defect ; or, at all events, of greatly reducing it :—

1ST SCHEME.

(a) *Organisation, Native Ranks.*

A regiment to consist of four squadrons and a *depôt* ; a squadron of four troops (both for administrative purposes and for the field) of fully trained men and horses. Each troop to consist of—

- 1 Native Officer (Rissaldar, Ressaidar or Jemadar).
- 4 Non-Commissioned Officers (including a Kote-Duffadar).
- 33 Rank-and-file (including a Nalbund and a Trumpeter, or Acting Trumpeter).

Total ... 38

(*N.B.*—Acting Trumpeter's pay to be the same as a Sowar's).

The *depôt* to consist of—

- 3 Native Officers (including the Woordie-Major).
- 12 Non-Commissioned Officers.
- 127 Rank-and-file.

Total ... 142 (Details given further on.)

SUMMARY OF THE ABOVE.

			Native Officers.	Non-Com. Officers.	Rank-and- file.	Total.
4 Squadrons	...	...	16	64	528	608
Depôt	...	...	3	12	127	142
	Total	...	19	76	655	750

i.e., an increase on the present strength of—

2 Native Officers.

12 Non-Commissioned Officers.

111 Rank-and-file.

Total ... 125

(b) Organisation, British Officers.

				Rs.
1 Commandant, with staff pay of	...	...	...	700
One 2nd-in-Command (Depôt Commander)...	...	...	...	300
Four Squadron Commanders, with staff pay of Rs. 250, } 210, 210 and 180, respectively				850
One Depôt Officer	...	...	...	150
One Adjutant	...	...	...	250
Four Squadron Officers at Rs. 150	...	...	...	600
One Quarter-Master (with depôt)	...	...	...	200

Total thirteen officers, drawing staff pay per mensem of 3,050

At present the staff pay of officers is—

1 Commandant	...	...	...	700
2nd-in-Command	...	...	...	300
2nd Squadron Commander	...	...	...	210
3rd ditto	...	...	...	180
4th ditto	...	...	...	180
Adjutant...	...	...	...	250
3 Squadron Officers, at Rs. 150+50 for Quarter Master	...	...	...	500
A couple of attached officers	...	...	...	300

Total, eleven officers, drawing staff pay per mensem of 2,620

This shows an increase in staff pay per mensem of
 (Rs. 3,050 less Rs 2,620) = 430
 Add pay proper of two Subalterns 450

Total increase per mensem of ... 880

(c) *Organisation of Depôt.*

Depôt to consist of—

2 British Officers (as above).

1 Quarter-Master.

3 Native Officers ... $\left\{ \begin{array}{l} 1 \text{ Ressaidar} \\ 1 \text{ Jemadar} \\ 1 \text{ Woordie-Major} \end{array} \right\}$ seniors in their rank.

12 Non-Commissioned Officers.

127 Rank-and-file.

The great drawback of a depôt is the dislike of all ranks to serve in it, as they are left behind when a regiment is ordered on active service—hence the difficulty of getting really good men in it. If, however, the depôt were made a step to further advancement *for all ranks*, this difficulty would be overcome, and could be effected as follows :—

Depôt British and Native Officers—The British Officer in command of the depôt, being the 2nd-in-Command, gets the command of the regiment when a vacancy occurs, that is to say, the depôt is his stepping-stone to regimental command. The Depôt Officer to be the senior Squadron Officer next for permanent command of a squadron. The Quarter-Master to the Adjutancy.

The same for the native officers.

Depôt Non-Commissioned Officers—The 12 Non-Commissioned Officers of the depôt to consist of—

1 Kote-Duffadar	1 Account Office Writer.
1 Head Drill Instructor.	1 Vernacular do.
2 Assistant Instructors	6 Duffadars.

The Kote-Duffadar and Head Drill Instructor should be the smartest men in the regiment, undergoing in the depôt their probation for a commission.

The two assistants would replace them, if considered fit to do so.

The six Duffadars to consist of *specially selected* men from all the squadrons and good Drill Instructors, to aid in the training of the depôt recruits and remounts. Their further advancement would depend on the way they fulfilled their duties both as instructors and in the lines; slackness being visited with reversion to their squadrons (a black mark against them).

Depôt rank-and-file.—All recruits are first posted to the depôt, and are not transferred to a squadron until fully trained, and on vacancies occurring.

(*N.B.*—It is needless to add that recruits *unlikely* to become good soldiers are discharged *direct from the depôt*, without ever having joined a squadron.)

The 127 rank-and-file of the depôt to consist of—

- 3 Trumpeters (including 1 Acting Trumpeter).
- 3 Nalbunds.
- 4 Camel Sowars (*none* in squadrons).
- 1 Schoolmaster.
- 10 Pay Sowars (2 for each squadron and 2 for the depôt).
- 1 Ward Orderly.

(Say) 55 recruits undergoing training—total 77, leaving a balance of 50 selected men and good riders to train remounts. These 50 men to rejoin their squadrons with their trained remounts on vacancies occurring; others sent with the next batch of remounts.

The depôt would then become, *not* a place men would shy at, or where they would be *permanently* kept, but a temporary training ground for every man in the regiment, first as a recruit, next as rough rider, and finally for promotion, which he would get if reported fit for it in the depôt. Squadron commanders would send smart men and good riders to the depôt, and those who they considered might become good and efficient Lance-Duffadars and Duffadars, as it would be from the depôt that *their supply* of such men would chiefly come.

The great stimulus which this system would give to all ranks to do their best is self-evident, and requires no comment; nor need one point out the fact, that Commanding Officers would have better opportunities of judging the qualifications of their men before granting them promotion to *all the various ranks* during their period of probation in the depôt.

(d) Field Service.

A regiment would proceed on active service with 10* British Officers, 16 Native Officers, and 592 rank-and-file, *viz.*—

A Commandant.

An Adjutant.

4 Squadrons, each of {
 2 British Officers
 4 Native do.
 4 Kote-Duffadars
 12 Duffadars
 132 Rank-and-file } each.

N. B.—The various appointments of Quarter-Master-Duffadar, Armourer Duffadar and Assistant, Trumpet Major, Grass Farm Overseer, Head Salutri and Assistant, Signalling Instructor and Assistant,

* Can be increased to 11 by leaving only 2 officers at the depôt.

Musketry Instructor, Farrier Major, etc, to be filled up as heretofore by men of all four squadrons.

The Cavalry regulations allow for squadrons of 4 troops of 16 files each, or a total of 128. In the above squadrons there are 152, or 24 more; but taking into consideration the reductions in strength caused by duties, guards, etc., the number actually available would not exceed 4 troops of 16 files. With a total strength of only 500, as at present organized for service, the actual effective fighting strength of each squadron is but too often reduced to four field troops of 20 all told (12 front rank and 8 rear), *or even less*—a number quite inadequate to the proper performance of such duties as advanced guards, outposts, etc., and far weaker than that of hostile squadrons we shall (and should be prepared to) meet.

ADVANTAGES OF THE SCHEME.

These are as follows :—

- 1.—No pecuniary loss to, or reduction in the grade of, any British Officer, Native Officer, or rank-and-file.
- 2.—It practically necessitates no change in the present strength and organization of 4 squadrons of a regiment.
- 3.—Increased efficiency in all the squadrons (consisting of trained men and horses only).
- 4.—Four strong squadrons in lieu of four weak ones.
- 5.—It facilitates the proper training and the looking after of the recruits and remounts, who would be *all together* in the *dépôt*, under the immediate command of a senior Officer and his assistant—instead of being scattered throughout the 4 squadrons as they are at present.
- 6.—The *dépôt*, a first class training ground for *all ranks*, complete in *every respect* and of sufficient strength to send re-inforcements to the front.
- 7.—Peace and war establishments of squadrons and *dépôt the same* without interchange of a single individual.
- 8.—The addition of a 2nd-in-Command to take the place of the Commanding Officer, two British Officers in each squadron, a Kote-Duffadar per *field* troop to replace each Native Officer.
- 9.—Troops for field and administrative purposes the same.

DISADVANTAGES.

- 1.—Extra expense to the State owing to the increased strength of a regiment, *vide* Appendix A next page.
- 2.—The *dépôt*, except in class regiments, would be composed of men of different castes.
- 3.—The cost of building another set of lines for the *dépôt*, and sufficient huts, for 62 syces.

N.B.—(3) is a question which concerns the Line Committee, and not Government, beyond the probability that their help in the shape of a loan would be asked for.

The depôt enumerated above is also of sufficient strength to supply considerable re-inforcements to the squadrons at the front, but the present objection, the dislike men entertain to being sent there, remains as heretofore.

In conclusion, for this scheme stables for 16 horses and hutting accommodation for 16 men would have to be added to each of the present $\frac{1}{4}$ squadron lines; also huts for 64 syces. The cost of this would be much less than that required by the 1st Scheme (see 3—Disadvantages, and its remark, page 153.)

ALTERNATIVE SCHEME.

To increase the strength of each squadron from an effective one of 156 to one of 188 (without forming a *dépôt*, until orders are received to mobilize for active service).

Each squadron in peace-time to consist of—

<i>British Officers.</i>	<i>Native Officers.</i>	<i>N.-C. Officers.</i>	<i>Rank-and-file.</i>
2	4	20	164

i.e., an increase of 4 Non-Commissioned Officers and 28 men per squadron, or of 16 Non-Commissioned Officers and 112 men per regiment, which means an increased expenditure per mensem of—

16 Duffadars,	at Rs. 42= Rs.	672	0	0
112 Rank-and-file	" "	31=	"	3,472 0 0
• Add British Officers' pay (as below)	...	"	505	0 0
TOTAL		...	4,649	0 0

1 Commanding Officer...	} With Staff pay of	...	Rs.	2,900	0	0
1 and in Command ...		At present	...	"	2 620	0 0
4 Squadron Commanders		Difference	...	"	280	0 0
4 " Officers ...		Add pay proper 1 Subaltern	"	225	0 0	
1 Adjutant ...	} TOTAL Rs.		...	505	0	0
1 Quarter-Master ...			<i>Vide page (1st Scheme).</i>			
12 Officers.						

Active Service.

On receipt of orders to mobilize, a *dépôt* of men from all four squadrons to be formed at once consisting of—

<i>British Officers.</i>	<i>Native Officers.</i>	<i>N. C. Officers.</i>	<i>Rank-and-file.</i>	<i>Total.</i>
2	3	16	132	151

(including W. M.)

The regiment would start on active service with a strength of—

<u>10</u>	<u>14</u>	<u>64</u>	<u>524</u>	<u>602</u>
TOTALS 12	17	80	656	753

Thus, each of the four squadrons for active service would consist of—

<i>British Officers.</i>	<i>Native Officers.</i>	<i>N.-C. Officers.</i>	<i>Rank-and-file.</i>
2	4	16	131

except in 2 squadrons, which would only have 3 Native Officers each.

See also remarks (d) Field Service (1st Scheme page 152).

The depôt enumerated above is also of sufficient strength to supply considerable re-inforcements to the squadrons at the front, but the present objection, the dislike men entertain to being sent there, remains as heretofore.

In conclusion, for this scheme stables for 16 horses and hutting accommodation for 16 men would have to be added to each of the present $\frac{1}{4}$ squadron lines; also huts for 64 syces. The cost of this would be much less than that required by the 1st Scheme (see 3—Disadvantages, and its remark, page 153.)

THE BATTLE OF CHARASIA—A TACTICAL STUDY.

BY CAPTAIN C. W. G. RICHARDSON, 19TH PUNJABIS.

would be difficult to find a better example to illustrate the mode of warfare peculiar to the Indian North-West Frontier, than the battle of Charasia fought on the 6th October 1879.

Both in its physical features and in the moral influence which it had on both victors and vanquished, it affords many points from which useful deductions may be drawn and lessons learnt.

In discussing such a battle, one of the participants in which, was a British army, organized and equipped on European lines, and the other an armed mob imbued with considerable fanatical courage and reckless daring, but almost entirely devoid of cohesion or discipline, there are one or two points which should be borne in mind.

Firstly, the tendency on the part of the civilized army to exaggerate the numbers of their opponents. This exaggeration is the result of inaccurate information obtained from natives who are notoriously given to drawing largely on their imaginations and also to the appearance of an enemy who are not marshalled in compact masses, but are generally scattered over the terrain in such a manner as to make their numbers appear much larger than they, in reality.

Secondly, we must remember, that although, in practically every instance, the uncivilized force is numerically superior to its antagonist, this disparity is equalized by the superiority of the latter in armament, supply of ammunition and in Commissariat arrangements. It may be objected that as far as regards Commissariat, the civilized force has the advantage, in that each man generally feeds himself and carries into the field a reserve of food; this may be so, but from the records of all our campaigns on the North-West Frontier it will be seen that this primitive method of supply has almost invariably proved the undoing of the tribal array, as, although the food which man brought with him into the field sufficed for a day or two, at the end of that period he was obliged to leave his post and go some for a fresh supply.

The village of Charasia, which gives its name to the battle, lies about four miles southward from the foot of a range of hills, which, running east and west, forms the southern boundary of the Chardeh Valley. Through a gap in this range, called the Sang-i-Nawishta gorge, flows the Logar river, and through it also runs the road to Kabul—the road which the British intended following.

The main ridge of the range is rocky and precipitous, culminating in a peak 2,200 feet high, which stands two-and-a-half miles north

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of Charasia. On the southern side, the lower slopes of the range end in semi-detached hills, which flank the main ridge and afford good advanced positions against an enemy attacking from the south.

North and north-west of this range lies the Chardeh Valley, through which flows the Kabul river.

The Kabul Field Force, under the Command of General Roberts, marched northwards to Charasia on the afternoon of the 5th October 1879. It consisted of.—

- 1 Battery of Royal Horse Artillery,
- 1 Battery of Royal Field Artillery,
- 1 Mountain Battery,
- 2 Machine Guns (Gatlings),
- 1,175 Sabres,
- 4,730 Bayonets,
- 1 Company of Sappers and Miners.

Of this force, 1,000 bayonets, 100 sabres and 2 mountain guns, under the command of General Macpherson, were one day's march in rear, escorting a large convoy of food and ammunition.

The force which General Roberts had, therefore, at his immediate disposal amounted to 1,078 sabres, 3,730 bayonets, 1 company of Sappers and Miners and 16 guns.

On the afternoon of the 5th October, the situation was as follows:—The Cavalry patrols, which were pushed out from Charasia towards the hills, reported the Sang-i-Nowishta gorge impassable for wheels.

From information received through the political officers, it was apparent that the Afghans meant to dispute the passage of the gorge. Kabul lay 12 miles beyond the Sang-i-Nawishta. The inhabitants of the country were covertly hostile, and bent on mischief, whilst the hills in all directions were occupied by many who, apparently had come to watch the issue of the impending struggle, with a view to taking part were the day to go against the British.

In rear of General Roberts' force, the road was blocked and, in all probability, General Macpherson would be compelled to fight his way up with his convoy.

General Roberts' objective was to defeat the Afghan force in front of him before it could be reinforced by a general rising of the tribes and, secondly, to open the road to Kabul.

Allowing for the inaccuracy of native reports and the absence of any documentary evidence in the shape of "States," the Afghan force holding the Sang-i-Nawishta consisted, as far as could be ascertained, of seven, so called, Regular Battalions and a host of "Irregulars," the whole numbering about 10,000 men with 16 guns.

The Afghan main position extended from the Sang-i-Nawishta gorge on the east, along the ridge described above, for about three miles to a point where it culminates in a peak 1,600 feet high.

The position was in the shape of a horse's shoe, its right, or west, flank being considerably in advance of the left. Both sides of the gorge were held, and the low hills in front of the main ridge were occupied by riflemen, whilst the guns were massed on the cliffs immediately to the west of the gorge. From the centre of the horse-

shoe, rose the 2,200-foot peak upon which the Afghans had intrenched the bulk of their force.

The advance in the early morning of a working party of Pioneers and an escort of British infantry who were sent out towards the Sang-i-Nawishta with a view to improving the road, evoked a brisk fusillade from the enemy and disclosed the fact that the approaches to the gorge were strongly held. The working party was withdrawn, but the Afghans were led to believe from the fact of the party's having approached their left, that it was upon that flank we meditated delivering our assault and, promptly set about reinforcing it.

Upon this, General Roberts decided to attack the position at once, and having deducted 700 bayonets and the Royal Horse Artillery Battery for the defence of the camp, handed over the remainder of the force to General Baker, to whom he gave the direction of the attack. One squadron of cavalry was, however, sent back to General Macpherson as it was feared that, owing to the increased hostility apparent in the bearing of the population, the safety of the convoy might be jeopardised.

General Baker's dispositions were as follows:—

He decided to make a feint against the enemy's left which was too strong for a frontal attack, and to assail their right with his main body.

For this purpose, he divided his force into two parts:—

<i>Right Column.</i>		<i>Left Column.</i>	
3 Guns, Royal Field Artillery		3 Guns, Royal Field Artillery.	
2 Squadrons ...	...	4 Mountain Guns.	
600 Bayonets ...	...	2 Gatlings.	
		2,000 Bayonets.	
		1 Company of Sappers and Miners.	

The Right Column was to engage the enemy's attention at the gorge until the Left Column had completed its turning movement. When this had been accomplished the cavalry were to gallop through the gorge, seize the further exit and be prepared to pursue the enemy who, it was calculated, would have been by that time driven out of his position.

At 11 A.M. the Left Column, under the direction of General Baker himself, emerged from the orchards and cultivation around Charasia and, forming into two attacks, advanced against the 1,800-foot peak on the enemy's extreme right, and the main ridge between that peak and the enemy's centre.

The 1,800 foot peak flanked the rest of the defensive line and no progress could be made in the attack until it was captured: it was the key to the advanced position.

The Afghans now discovered their mistake in reinforcing their left, and realized that it was their right which was to be assailed. They began hurrying up reinforcements, but it was too late, for, after two hours' hard fighting, the peak was carried about 2 P. M.

The Afghans retired to a second position (see plan) about 600 yards in rear of their first, but still a good deal in advance of their main point of defence in the centre of the horse-shoe.

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The Afghans retired to a second position (see plan) about 600 yards in rear of their first, but still a good deal in advance of their main point of defence in the centre of the horse-shoe.

Here they made a stand for about half an hour, but the Left Column, being reinforced from the Right, which had meantime gained ground against the enemy's advanced position on the left, went up at the double and drove them out, whilst three field guns were brought up by the Right Column against the Afghan Artillery posted above the gorge.

The Left Column, having gained the main ridge, swung round to its right, thereby taking the Afghans at the gorge in flank; the Right Column pushed their attack vigorously and the enemy, assailed in front and taken in flank, broke and fled precipitately.

The Left Column was now obliged to halt in order to replenish their ammunition from the reserve supply which had been left at Charasia. This caused much delay and darkness fell before the infantry were ready to follow up the cavalry, who had gone in pursuit of the defeated enemy.

So far we have dealt with the events of the battle, and may now turn to the lessons to be learned from it and apply those criticisms which the lapse of time enables us to pass upon events which can be better and more profitably studied in perspective, than when the feelings which our country's victories stir up within, are still intense and likely to bias our opinions.

1. To gain great results great risks must be undertaken. A bold and vigorous course of action, especially against Asiatics, is often sound tactics. At Charasia the situation was critical. The small British force was confronted by a numerically superior enemy, in the proportion of five to one, who occupied a strong defensive position; the British communications were practically severed and defeat meant annihilation, for the entire warlike population of the country would have risen and joined the victors. By accepting the risks and adopting a bold policy, General Roberts not only relieved the tension on the line of communications, but inflicted severe moral and physical loss on the enemy and opened the road to Kabul.

2. When holding a line of hills, the defiles leading through them would, naturally, be watched and placed in a state of defence, but experience teaches us that in nine cases out of ten, the defile itself will not be the point at which the main attack will be directed, but that the assailant will seek to turn the flank of the defile. Hence, we must find that point, the possession of which is indispensable to the possession of the defile, in other words, the key to the position must be found and made the strong point of the defence.

As with a line of mountains, so with a river—the bridges over the latter being the defiles. In accepting the above principles of defence, however, there is one important fact which must not be lost sight of, namely, that the "Key" may be "masked" or "contained" by the assailant, whilst he launches his attack against some other portion of the line. This adds another element of danger against which the defender must contend.

At Charasia the Afghans were led into the error of massing their men at the gorge, by what really amounted to an unintentional "feint" namely, the despatch of the working party to improve the roadway. They discovered their mistake when too late, and when the British had already established a tactical superiority.

3. The Afghan right was thrown forward; it would have been better to have refused it or pivoted it on the 2,200-foot peak, although the conformation of the ground in some measure justified the dispositions they made.

A flank which is refused is difficult to turn, for the force making the turning movement renders itself liable to be attacked in flank; and as a good example of this it is interesting to compare Kerby Smith's attack on the Federal turning Column at the battle of Bull Run.

4. General Roberts' plan of feinting at one place and pushing home the attack at another, was the only one open to him, considering the numerical inferiority of his force; yet it is open to doubt whether it would not have led to disaster had he been confronted by a disciplined opponent, for the obvious course for the Afghans to adopt, was to wait until the Left Column had become committed to the attack, and then to deliver a heavy counterstroke against the weak and practically isolated Right Column.

5. The company of Sappers and Miners who accompanied the Left Column might well have been left behind to fortify the camp, or to place the village of Charasia in a state of defence, which would thus have afforded a useful rallying point in the event of the attack on the enemy's position failing, or only partially succeeding.

6. In the disposition of the cavalry we have an example of the sound utilization of this arm. They could be of no use to the Left Column in carrying out its attack, whereas, by attaching the whole of the mounted men to the Right Column, they were placed in a good position to take up the pursuit in case the enemy were routed.

7. It was a mistake—due, in all probability, to an oversight—to have the reserve of ammunition so far in rear of the attacking line. It caused delay which militated against the full benefit being derived from the victory.

8. The danger, as well as the advantages of an advanced position are exemplified in this battle. The Afghans on the outlying spurs undoubtedly caused delay in the attack and inflicted considerable losses on the British force, but once they were driven out, notably from their second position, the assailants followed so closely on the heels of the fugitives that they were unable practically to make any stand at all on their main position.

The successful prosecution of a defence consisting of several successive lines requires most skilful manipulation and a careful organization and system of command whereby it can be ensured that the resistance made on each position shall neither be too protracted, nor cease too soon, that the retirement from each shall be covered by the one in rear and that the space intervening between the lines shall be commanded by flanking fire which, whilst it is not liable to be masked by the retreating defenders, can prevent the assailants from following too closely upon their heels.

Note.

[The two following articles are published together as, between them, they ably represent the latest ideas on that most important duty of modern war—the duty of Reconnaissance. It may be said that two schools of thought exist in connection with this subject; the one advocates the employment of individual scouts, the other supports the theory of reconnaissances in force. Both of these are discussed in the two articles which follow.]

**THE DIFFICULTIES IMPOSED BY SMOKELESS^{*} POWDER
AND LONG RANGE WEAPONS ON RECONNAISSANCE
OF AN ENEMY'S POSITION IN PARTICULAR, WITH
SUGGESTIONS FOR MEETING THE SAME.**

BY CAPTAIN F. C. LAING, 12TH PIONEERS.

In studying the question of reconnaissance under modern conditions of warfare, two important points present themselves, one being its increased necessity, the other its increased difficulty. When we read the accounts of the South African War—especially those written by non-military, correspondents, chief amidst sarcastic criticism, gratuitous advice, and wholesale condemnation, we find allusions made to the absolutely inadequate attempts of commanders in the field to reconnoitre before launching their troops in an attack. It is extremely easy to criticise, and especially so when there is some foundation for such strictures; but neither the journalist, nor the general public have, so far, justified their adverse remarks, especially in regard to the subject of reconnaissance, by offering any solution to this problem which commanders have at all times found difficult, and which is still more so at the present day. The fact that our troops walked into ambushes, assailed impregnable positions, and found themselves under the close fire of the enemy in vulnerable formations, is unfortunately true enough, but before accusing officers and men of culpable negligence, it would be juster to find out, and make some attempt to realise the difficulties of the case.

The chief of these may be summed up as follows—

1. Invisibility of the objective.
2. Invisibility of the enemy.
3. Increased extent of a defensive position, in proportion to the number of the defenders.
4. Increased size of the dangerous zone produced by modern long range weapons.

All the mistakes leading to disaster alluded to above, may be directly attributable to these four causes, and I propose to consider them in order before making any attempt at offering any

solution to the problems involved. To think that a solution is possible, may be a rash presumption on my part, but I venture to believe that the problem is robbed of some of its difficulty, if we can so thoroughly appreciate the dangers of reconnaissance that we learn by experience, and from necessity, how best to avoid them. To attain success, we *must* know all about our enemy, and to get this information, we must either push on boldly without concealment, or we must resort to individual enterprise coupled with secrecy.

1. Invisibility of the objective.

This means in other words that concealment from observation, which it is the desire of all defenders to attain in taking up a position. We all know what the requirements of a defensive position are, and we further know that in addition to a good field of fire, strong defensible features, good communications, etc., modern conditions demand the concealment of shelter trenches and artillery positions, and the endeavour to avoid the occupation of ground where the natural features give good points to range on. To increase the difficulties of observation, a skilful defender resorts to wiles and stratagems; false shelter trenches are made, likely points are undefended, unlikely ones strongly held, guns are concealed and their position altered from time to time, and the result of these precautions is that reconnaissance, as now carried out, can at best but give very uncertain and unreliable information.

2. Invisibility of the enemy.

Closely allied to invisibility of position or objective, is the invisibility of the enemy; during the course of a whole day's serious engagement in South Africa it has frequently been found that the fight has been waged against a totally invisible foe, not a single opponent has appeared in sight and his presence has simply been felt, not seen. That such a state of affairs is possible in a modern battle is simple enough; added to concealed and bogus defences, we have to consider the extremely small mark offered by a properly trained soldier to the observers, even when the exact position of the former has been detected, part of a face, shoulder and arm is all that can be discerned, and that only at intervals when the man is actually firing. Recent science has provided the "hyposcope" which enables aim to be taken and the rifle fired without the firer showing any part of his body or head. A still further cause of invisibility, is the colour of the uniform worn by troops in war.

3. Increased extent of a defensive position, in proportion to the number of defenders.

One of the most noteworthy features of the recent South African war, was the enormous front defended by the very numerically inferior enemy; positions extended for 20 miles and more, and the slow turning movements made by our attacking infantry, often resulted in their being brought to a stand-still by the more mobile Boers, who

had ample time to turn what was intended for a flank attack, into an actual frontal one. This extended defensive front combined with depth formed by line upon line of positions in rear, not only added to the strength of the position held, but rendered even more difficult, any attempt at thorough reconnaissance—to penetrate and report on the first position, occupied, required great skill and boldness, and even if successful, only local information could be obtained and the commanders were still left in ignorance as to the actual numbers and whereabouts of the enemy.

To envelope the position was slow, tedious, and often futile: to penetrate in strength at any point or points, was simply to push back the elastic band, a simile which one writer has applied to the yielding firing line of the Boers, without in the least diminishing its strength, or affording any useful information. In other words, neither the system of reconnoitring patrols, nor reconnaissance in force, seemed to be of any material use.

4. Increased size of the dangerous zone produced by modern long range weapons.

It will be seen by the remarks under the three foregoing sub-headings that the points touched on are closely allied to one another, and the one now under discussion is equally dependent upon the others. It is in fact, because of the long range of modern fire-arms, that the objective must often remain a sealed book to the observer, that the enemy are too far away to be located accurately, and that such a rapid far-reaching fire can be brought to bear upon gaps in the defenders' position, that relatively small numbers can hold such enormous stretches of country. In the days of black powder and medium range weapons, the reconnoitrer was not only in less danger owing to the more restricted fire zone, but if fired at, he was able to tell from whence the fire emanated, at the present day, merely drawing fire is no indication of the enemy's strength or whereabouts, it is impossible to tell for example whether one is being fired at by two men rapidly, or twenty slowly, the fall of bullets being approximately equal, and even if the position occupied by the firer can be guessed roughly by the direction of the bullet, a change of position between the shots, again throws us out of our calculations.

The points which have been dealt with under these four heads make no pretence to be a full supposition of the dangers and difficulties of reconnoitring, but they may help us to realise that it is far easier to censure the troops for inefficient reconnoitring, than it is to teach them how to seek for, and how to find, an enemy, by a method both simple and efficacious, and although, when it comes to instructing, the rank and file, simplicity of directions is to be sought after, it is questionable whether the art of reconnaissance is not one which requires special intelligence and special gifts on the part of the pupil, which are

seldom at the disposal of the teacher, and which we cannot hope to find impartially distributed among all the ranks of an army. If there is one thing which is to be deprecated more than another, it is the theory which prevails, that any man can be trained to any duty by dint of incessant hard work and constant instruction in that particular branch of it ; it may be objected that the process of selection goes on from the highest to the lowest ranks, and, to a certain extent, this is true, but there is not the smallest doubt that a very large percentage of both officers and men find themselves, either by mis-directed selection or chance, in positions for which they have no aptitude ; we find the keen out-of-door soldier tied to an office chair, the officer who is only fitted for desk work, thrust into command of troops in the field.

As are the officers, so are the men, each individual of the largest army has some particular tastes or a natural predilection for certain kinds of occupation and while it is of course obvious that a standard of intelligence and military knowledge must be kept up by all, it would seem wiser and more for the good of the service generally, if greater pains were taken to train the individual according to his tastes and characteristics, and to eliminate by degrees all those whom experience proved, were unfitted for the special tasks imposed on them. The "Jack-of-all trades" theory, is not one which commends itself to the commercial mind, and it is not easy to see why the individuals, and especially the officers of an army, should be considered fitted for any and every job which chance puts in their way : that the jobs are performed honestly and to the best of the individual's powers, is a matter for congratulation, but it is business conducted on the most expensive and least effective lines. How many times did it happen in South Africa that our troops, although preceded by some sort of screen or reconnoitring patrols, marched straight into the midst of the enemy and were made prisoners without even a show of resistance ? The art of seeing without being seen, so admirable in theory, became in practice "the art of being seen without seeing."

Our concern, however, is not to criticise, but to endeavour to find some method by which reconnaissance can be effectively carried out in spite of smokeless powder and long range weapons, and in this connection, I should like to quote a passage from a work by one of the foremost military writers of the day ;* he says :

"The fact that the defender is in the stronger position will lead in two directions. In the first place the assailant will more than ever use flank attacks ; if these are to be successful, they must be wide ; this involves, even more than formerly, numerical superiority for the offensive, as so much more ground has to be covered..... Strength, however, will not be merely in numbers, but in being sure that the tactical blow is not liable to be interrupted while being struck. This will involve wide spread reconnaissance, to be certain no hostile troops are within striking distance of the flank attacks ; in the second place, advantage will be taken of darkness to draw as near as possible to the position to be attacked, so as to rob the defensive of the advantages it obtains from long range weapons. This will involve very

* Modern Strategy by Lieutenant-Colonel W. H. James, page 141.

Note.

[The two following articles are published together as, between them, they ably represent the latest ideas on that most important duty of modern war—the duty of Reconnaissance. It may be said that two schools of thought exist in connection with this subject—the one advocates the employment of individual scouts, the other supports the theory of reconnaissances in force. Both of these are discussed in the two articles which follow.]

**THE DIFFICULTIES IMPOSED BY SMOKELESS POWDER
AND LONG RANGE WEAPONS ON RECONNAISSANCE
OF AN ENEMY'S POSITION IN PARTICULAR, WITH
SUGGESTIONS FOR MEETING THE SAME.**

BY CAPTAIN F. C. LAING, 12TH PIONEERS.

In studying the question of reconnaissance under modern conditions of warfare, two important points present themselves, one its increased necessity, the other its increased difficulty. When we read the accounts of the South African War—especially those written by non-military correspondents, chief amongst them, of gratuitous advice, and wholesale condemnation, we find a lesson made to the absolutely inadequate attempts of commanders in the field to reconnoitre before launching their troops in an attack. It is extremely easy to criticise, and especially so when there is no foundation for such strictures; but neither the journalist, nor the general public have, so far, justified their adverse remarks, especially in regard to the subject of reconnaissance, by offering any solution to this problem which commanders have at all times found difficult, and which is still more so at the present day. The fact that our troops walked into ambushes, assailed impregnable positions, and found themselves under the close fire of the enemy in vulnerable formations, is unfortunately true enough, but before accusing officers and men of culpable negligence, it would be wiser to find out, and make some attempt to realise the difficulties of the case.

The chief of these may be summed up as follows—

1. Invisibility of the objective.
2. Invisibility of the enemy.
3. Increased extent of a defensive position, in proportion to the number of the defenders.
4. Increased size of the dangerous zone produced by modern long range weapons.

All the mistakes leading to disaster alluded to above, may be directly attributable to these four causes, and I propose to consider them in order before making any attempt at offering any

solution to the problems involved. To think that a solution is possible, may be a rash presumption on my part, but I venture to believe that the problem is robbed of some of its difficulty, if we can so thoroughly appreciate the dangers of reconnaissance that we learn by experience, and from necessity, how best to avoid them. To attain success, we *must* know all about our enemy, and to get this information, we must either push on boldly without concealment, or we must resort to individual enterprise coupled with secrecy.

1. Invisibility of the objective.

This means in other words that concealment from observation, which it is the desire of all defenders to attain in taking up a position. We all know what the requirements of a defensive position are, and we further know that in addition to a good field of fire, strong defensible features, good communications, etc., modern conditions demand the concealment of shelter trenches and artillery positions, and the endeavour to avoid the occupation of ground where the natural features give good points to range on. To increase the difficulties of observation, a skilful defender resorts to wiles and stratagems; false shelter trenches are made, likely points are undefended, unlikely ones strongly held, guns are concealed and their position altered from time to time, and the result of these precautions is that reconnaissance, as now carried out, can at best but give very uncertain and unreliable information.

2. Invisibility of the enemy.

Closely allied to invisibility of position or objective, is the invisibility of the enemy; during the course of a whole day's serious engagement in South Africa it has frequently been found that the fight has been waged against a totally invisible foe, not a single opponent has appeared in sight and his presence has simply been felt, not seen. That such a state of affairs is possible in a modern battle is simple enough; added to concealed and bogus defences, we have to consider the extremely small mark offered by a properly trained soldier to the observers, even when the exact position of the former has been detected, part of a face, shoulder and arm is all that can be discerned, and that only at intervals when the man is actually firing. Recent science has provided the "hyposcope" which enables aim to be taken and the rifle fired without the firer showing any part of his body or head. A still further cause of invisibility, is the colour of the uniform worn by troops in war.

3. Increased extent of a defensive position, in proportion to the number of defenders.

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often battles of two days duration ; on the first, the attack will be more or less tentative and devoted to winning a position where the troops can be intrenched, and which will serve as the base for a further advance the next day. The first phase will be of the character of a reconnaissance which will enable the assailant to judge where he should eventually push home.... For the days of reconnoitring positions by individuals, or by drawing fire, are gone. The former cannot get near enough to see without being shot, the latter gives no smoke and therefore indicates nothing. Balloons seem to be the only means left by which to accurately ascertain how the enemy is posted.

Here we have the thoughtful opinion of an expert, and as such, we are bound to treat it with deference, at the same time, however, there are certain points in his argument which may at any rate be received with caution, and certain theories which may be susceptible of modification when applied to the practical test of war. In the passage quoted, we see the necessity for wide spread reconnaissance, and also that this will be accomplished by making an attack upon the enemy's position ; in other words, we must resort to a reconnaissance in force. But to do this, simply means that we have sufficient knowledge of the enemy's strength, position, and whereabouts, to feel confident that we can overcome any opposition he may make to our advance, and it is hard to see how this information can be arrived at without the aid of individuals, *i.e.*, scouts, for, whether the enemy is being attacked at certain points, or along his whole front, the firing line must be preceded by scouts who will point out the favourable points of attack, even prior to the general reconnaissance by the commander ; if coigns of vantage are to be gained in advance of the enemy's main position to facilitate the next day's advance, reconnaissance alone can determine where these points are, and if the position extends for several miles, no serious attack will be made along the whole front, but the troops will be massed in front of those points where the attack is to be pushed home, *i.e.*, opposite those places which previous reconnaissance has proved to be naturally weak and thinly occupied. A reconnaissance in force may, and frequently does, entail the commencement of a premature engagement, and perhaps on this account alone it is best not to resort to it, if therefore, we wish to find out, and find out we must, the exact extent of ground occupied, the approximate number and position of the enemy, it is evident we must do so by means of individuals.

This must not be taken to mean that troops may not, or should not be detailed when opportunity arises to make a bold dash at the enemy's position at certain points and to seek to forcibly tear away the veil concealing it ; but we are here endeavouring to discover some satisfactory means of finding out the enemy's resources, etc., before any engagement takes place ; for battles in these days are between vast armies where concentration is as difficult as it is necessary, and where delay when concentrated, is the one thing to be avoided ; we want to find out all about our enemy beforehand, so that when we concentrate for attack, we are already in possession of sufficient knowledge to enable us to do so at the most advantageous points ; if we com-

mence hostilities by throwing forward a strong body of troops, we not only run the risk of bringing on an unprepared engagement, but we may induce the enemy to concentrate in time to frustrate our main advance ; surprise being the essence of successful attack, we should endeavour to avoid this reconnaissance in force, except perhaps in the case where we are so numerically superior, that we can make it at two or more places at once and turn it into the real attack at the most favourable point or points.

Before venturing on any suggestion as to the means by which reconnaissance can be effected, it is only proper to refer to the closing sentence of the passage quoted above, where mention is made of the employment of balloons. Their use in war has already been demonstrated, and we may safely conjecture that no civilized nation will enter upon a campaign without the aid of dirigible air-ships. Without wishing to trespass into the fanciful realms of Jules Verne or Mr. Wells, it is possible to picture to ourselves the use to which airships might be turned as a means of reconnoitring. Ascending unobserved behind the attacking army, they would sail over the enemy's position at night, commence their observation and, completing them towards morning, rise out of danger and sail back to their head quarters, where they would by means of their telephones, electric wire, or signalling give all their information while remaining in observation of the enemy's movements. As the defending force would also employ air-ships, manœuvring, not to say engagements, would ensue between the opposing aerial forces.

Leaving the two belligerents at their stage of future warfare, we can now turn our attention to the more prosaic details of what we may, bye and bye, be compelled to term "earthly reconnaissance."

If we glance at the method in vogue by which information of the enemy is sought for, whether it be the covering of an advancing army by a cavalry screen, or the reconnoitring of his position, it is evident that any information so obtained must be of the crudest; for, supposing the enemy's cavalry are brushed aside and suspected localities efficiently examined, a time will arrive when the enemy's infantry have to be dealt with, and a further advance of the cavalry ceases; the actual position of the enemy is still undetermined, and our advance must stop until we have found it.

Some means must be found for getting information, and we can resort to two expedients; either we must penetrate the enemy's screen in front, or we must work round his flanks and rear, or we may do both.

The question is, how can such penetration be effected?

We have already seen that the long range and rapid fire of modern weapons not only enables a comparatively small force to hold a large one in check, but that the gaps between the defending units may be of considerable width, *i.e.*, from some hundreds of yards, to over a mile, even where no guns are employed by the defenders. I propose, therefore, to make use of these gaps to help our reconnaissance. As regards turning the enemy's flank, I should like to quote another passage from Colonel James' work; it runs as follows: "The huge modern army is very dependent on its communications. These are always

open to attack by a force of great mobility, able to move long distances without much impedimenta. Five thousand men on horses and bicycles, with food and ammunition, carried on auto-mobiles able to do 50 or 60 miles a day, could carry destruction into the rear of an army and paralyse its movements, while its power of resistance with modern weapons is so great, that it could fairly hope to make good its retreat." Herein lies some hope for the reconnoitrer. Leaving our first proposition for the present, let us see what can be done in regard to the second. The reconnoitring parties can either accompany the raiders, or, following the same procedure, they can make a wide turning movement and seek to get in rear of the enemy's position. In countries with good roads like those in Western Europe, the motor cycle could be used, and in close country with bad roads relays of horses. Suppose a party to consist of four men on cycles capable of travelling 60 miles a day; in one day they would probably be able to get twenty to thirty miles in rear of the enemy's position, and say 10 miles from the flank they entered by, halting two men here, the remaining pair would proceed 10 miles further; under cover of darkness, rain, fog, etc., they would then continue to move forward, at daybreak they would commence their observations, noting the whereabouts of the main body, general line of entrenchments and location of the guns, the men would then return to some pre-concerted place of rendezvous, after each man had got all the information obtained by the others, they would make the best of their way back; they should have accomplished their task in three days with any luck, and as all four have the same information, there would be a good chance of at least one getting back in safety. Several similar parties would be used, and it would be best to establish these in two or more lines, for example, one party would go by the right flank 10 miles in rear of the position, the next 15 miles in rear and so on; in this way the whole area of the position would be searched. Similarly, in front we should have small parties moving forward along the whole line at varying intervals, their object being to penetrate and, if possible, co-operate with the flanking parties, and our endeavour would be to arrange in this way a net-work of individuals who, although acting independently, would at the same time have one common purpose.

We now come to the two most important questions of all, namely, the method to be employed by the individual reconnoitrers and their training. In a previous paragraph I have ventured to doubt the soundness of the "Jack-of-all trades" system, and as the qualities of a successful reconnoitrer are "extensive and peculiar," I would suggest that only men who have an aptitude for such work be chosen; the very characteristics which make the British soldier such an admirable fighter, are opposed to those required by the skilled reconnoitrer; equal pluck is necessary for both, but the latter must be a man possessed of unusual nerve, resource, knowledge, slimness, and endurance. He must be able to move through any sort of country noiselessly and be able to utilise to the full, every scrap of cover available; keenness of sight and hearing are essential; he must

in fact possess the qualities of the scout and hunter, with a knowledge of sketching and photography, for he must do both well. He must cultivate what is known as a "picture memory," *i.e.*, one which takes in a scene at a glance, and which is able to reproduce it on paper afterwards. In selecting our reconnoiters from the British or Indian Armies, we must go preferably for the men whose early habits of life can be turned to account; the man whose previous existence has been passed in the open; the gamekeeper, the poacher, the Shikari, not the husbandman or townsman. He is essentially a specialist, and the ideal training seems to suggest that he should be caught young and trained solely for the purpose.

That my suggestion for a specially trained corps of reconnoiters is based on the previous experience of former wars, may be gathered from the following extract from Colonel Henderson's "Stonewall Jackson," page 427: "In the Army of Northern Virginia every Commanding General had his own party of scouts, whose business it was to penetrate the enemy's lines, to see every thing and to hear every thing, to visit the base of operations, to inspect the line of communications and to note the condition or temper of the hostile troops." We cannot therefore reasonably doubt, that in the past, so in the future, reconnoitring will be found only possible by having specially selected men trained solely for the purpose; their work will be, not to fight, except perhaps to extricate themselves from some dangerous situation; and we must therefore provide them with some light handy fire-arm, say, a magazine pistol, and dress them in a uniform suitable to the country in which the operations are taking place. Khaki for example, is no more fitted for work in a green or woody country, than red or black on a sandy plain. The corps should have special privileges and better pay, and their efficiency should be so constantly tested, that there should be no chance of indifferent officers or men remaining in it, and those incompetent from mental or physical defects should be eliminated at once. I have not touched on the question of the use of spies, these would be largely used, but their employment is outside the scope of this paper, and I will therefore conclude by again urging the necessity for the formation of a special corps, and not to endanger the success of future campaigns, by starting them with untrained and comparatively useless men, who, instead of providing information, are liable to capture, and simply capable of obtaining information which may lead our armies, not to victory but to disaster.

THE DIFFICULTIES IMPOSED BY SMOKELESS POWDER AND LONG RANGE WEAPONS, ON THE RECONNAISSANCE OF AN ENEMY'S POSITION.

BY MAJOR W. EWBank, R E., D. A. A. G., FOR INSTRUCTION.

A study of tactical developments, like that of every other science, is a study of the relationship between "cause" and "effect." The introduction of smokeless powder and the increase in the range and rapidity of fire are "causes", the effect of which we see in the modifications that have taken place in tactical ideas. In the reconnaissance that we are considering, the very causes that have made the operation so difficult, have at the same time enhanced the necessity of the reconnaissance and increased the importance of its successful accomplishment.

It may help us to realise the necessity of this reconnaissance and the difficulties attendant on its accomplishment, if we take a campaign from military history and endeavour to imagine it fought out under all the modern conditions of war. For this purpose we will take a campaign that illustrates the two principal uses that may be made of the defensive. Those who see the Journal of the United Service Institution of India will probably have read Colonel Rundall's interesting lecture on the Atlanta Campaign in the October number of last year. I propose taking merely the broad outlines of this campaign as a text, and will try to picture what the conditions would be if we were fighting a campaign, somewhat similar as regards strategy and tactics, but invested with the conditions that modern war would give it.

The broad outlines of the Atlanta Campaign were as follows : —

A Northern, (Federal) force, of strength nearly 100,000 men invades the country west of the Alleghany mountains, and presses back a Southern, (Confederate), force of strength at the outset, probably 60,000 men, but reinforced after the campaign had commenced, up to a strength estimated at 75,000 men. The Northerners had in their advance only one line of railway. The Southerners had a very active cavalry force which continually threatened, and often attacked, the Northerners line of communications.

Let us now imagine ourselves to be the Northern force invading a Southerner's country under conditions somewhat similar as regards strategy, to that of the Atlanta Campaign, but otherwise modified to the possibilities of warfare in modern times ; that is, the enemy, the Southerners, have a well-equipped, well trained, regular army, led by experienced generals, and furnished with all that is modern in the way of guns and fire-arms.

Let us also assume that at the outset we are superior in strength, but that before the campaign is concluded it is possible that our oppon-

ents may receive reinforcements ; further, that, as we advance into the enemy's country we shall have only one line of railway available, subject to our being able to repair any damage done to it by the enemy.

The strategy open to the enemy is instructive for our purpose, because it illustrates the different tactical uses that may be made by him of the defensive, and the necessity of reconnaissance on our part.

He may adopt either of two lines of strategy :—

The first, to do very much as the Confederates, or Southerners did in the Atlanta Campaign ; that is, they took up strongly intrenched positions only to evacuate them, when they were turned, to retreat to previously prepared positions in rear. This is an example of what may be called the pure defensive. In itself it would gain no decisive results, but it would carry some advantages as a temporising policy to gain time for reinforcements to come to the defenders' aid. If we attack a heavily intrenched position, we should suffer heavy loss. The position will have been chosen with a good and prepared field of fire. No large counter-attack being contemplated by the enemy, there will be no restrictions to a large use of obstacles, natural or improvised, to detain our attack under their effective fire. If we turn the position, the enemy gains time by the wide turning movement involved, and great care will be necessary to protect the flank of our turning force. The enemy's cavalry screen, supported by Horse Artillery and Mounted Infantry, will prolong his flanks and, by giving notice of our turning movement, will allow the enemy to evacuate his position. The second course open to the Southerners, would be to make such a skilful use of the offensive-defensive, as to neutralise their inferiority in numbers, and enable them to take the offensive. In this case their position would be chosen with their counter-attack prominently in their view. It would be chosen to invite attack, to reap all the advantages that a skilfully prepared position may confer and then to give the opportunity of launching a strong counter-stroke. It is well to consider what the advantages of such a position would be to the enemy. His first line troops would be well concealed ; posted with a good field of fire ; ranges ascertained ; and an ample supply of ammunition at hand. The importance of concealment to the defence is so great that no effort would be spared to conceal his dispositions. The difficulty in locating his position will be still further complicated by his mobile troops, Cavalry, Horse Artillery, and Mounted Infantry, occupying a false front or false flanks. In the main position the trenches would afford the defenders cover against any attempt on our part at *preparatory* artillery fire, and would be carefully designed to avoid enfilade fire. His guns, will be concealed. The machine guns and lighter field guns may still further study concealment by reserving their fire until our attacking infantry present a good target. It is most important to remember that motion means loss of concealment as a rule. The infantry-man can fire with little motion, while the service of guns necessitates more motion on the part of the men. Even when we locate and endeavour to crush him, his guns, covered ways and alternative emplacements, will

render this difficult. Local reserves will be on the watch for opportunities to make local counter-attacks, or to reinforce weak points. Last, and not least, a comparatively strong General Reserve will be concealed ready to take advantage of any mistake on our part and deliver a strong counter-attack.

Before we decide to attack, we require information on certain points, if we would attack on sound principles. One elementary principle has come down from past ages, applicable alike to tactics and strategy—we must seek to be locally superior to the enemy at the decisive point. How are we to ascertain which is the decisive point? It may be some point dominating the enemy's position, threatening his line of retreat, but the reasons that make it a decisive point will be equally, if not more, patent to the enemy and he will take special measures to guard it.

It is more likely that his weak points will be our first objective. The range of modern weapons with a good field of fire has lengthened out the time necessary to attack a position and greatly increases the difficulties of fulfilling a condition that comes in here, viz.—the necessity of deceiving the enemy as to the objective of our main attack. If this is not done, he will reinforce his weak points. We must chain his defences down to all the other portions of his position and possibly this can only be effected by troops attacking, as well as threatening. Hence, we must know the extent of his position.

I have before referred to the enemy's protection against any preparatory artillery fire. To assist and support our attack, we must have covering fire both of guns and infantry. Thus it is a good thing to know what positions of observation for this covering fire. In this we are led up to the points mentioned in "Command Training" to which information is required, which are—

- (1) The extent of the position.
- (2) Its weak points.
- (3) The key of the position.
- (4) Features favouring the effectual development of covering fire.

It would be desirable also to know the locality of the enemy's General Reserves. When his final counter-attack comes it is on our General Reserve, aided by artillery fire and, possibly, by the rapid transfer of mobile troops, that the task of meeting it will lie. "Command Training" says "the assailant will base his plan of attack on as thorough a reconnaissance of the enemy's position as possible." We have seen on what points information is required and why it is required. The attempt that I have made to picture what the difficulties can do to lead us will, I hope, only at one of the difficulties of the problem. We must strive in the future to find out even then no smoke war between positions in the low sky against the skyline. All this will be covered and a smouldering fire will give no indication of the lines that will pour out a rain of lead.

It was a thorough reconnaissance to be effected? Let us turn to our guides for information of the means by which it may be done.

"Combined Training" indicates, but only *indicates* means by which it may be carried out. These are—

- (1) Personal reconnaissance.
- (2) Staff Officers.
- (3) Patrols and scouts.
- (4) Balloons.

I hope that officers whose experience renders them better qualified to speak than I am, will tell us how much they think personal reconnaissance, or staff officers, would be able to ascertain with a skilful enemy. One cannot but think that it will not be much with a well ordered defence. If this is correct, we are left to patrols, scouts and balloons.

Balloons have hardly yet had sufficient trial in this connection, and we must leave it to balloon experts to testify on their behalf. It will be noticed that "Combined Training" makes a reference to a "Reconnaissance in Force," but merely to point out that its disadvantages are so great, that it should never be resorted to unless absolutely necessary. It is clear that with a well ordered defence a Reconnaissance in force will only effect its object if it *so deceives the defenders that they mistake it for a real attack*. If it is made with a large force it may precipitate, on quite undesirable lines, a fight from which it is difficult to withdraw. If made with a small force, it is liable to be crushed. Success will depend upon chance, and there will be no concentration of effort. "Combined Training" goes a little further into details as regards patrols:—It states that the above disadvantages attendant on a Reconnaissance in Force would not apply to what are called, "Strong Patrols." It pictures a troop or a company, approaching unseen, threatening various parts of the enemy's position, using every device calculated to give an exaggerated idea of their numbers, endeavouring to draw the fire of the enemy's guns, and possibly having to wait until night-fall to make good its retreat.

It is interesting to note in this connection that in 1900 a small book was written by a Captain Von der Goltz called "Independent Patrols." The author sketched the advantages that might accrue in various operations from the use of "independent infantry patrols" consisting of specially selected and highly trained groups. His scheme was, that each section of the German company, which would be about 80 men, should provide a group of 8 men with a non-commissioned officer, all specially selected and specially trained. These groups were to carry compressed rations and sufficient ammunition to render them independent, if necessary, for two or three days.

In every company there must be some men with a much better aptitude for finding their way about, and a better eye for country than others. There is no doubt that this aptitude could be educated and improved. Instead, then, of using the company as though the men were all, more or less, of the same level of intelligence, special work would be entrusted to men of special aptitude and special education. The company commander will perhaps say, "that is very fine, but you propose to deprive me of my best men." I would suggest

that our company might furnish two such groups, and that one of them be always left for the company commander. He also requires trained scouts, for it is recognised now that the company is the fighting unit of infantry.

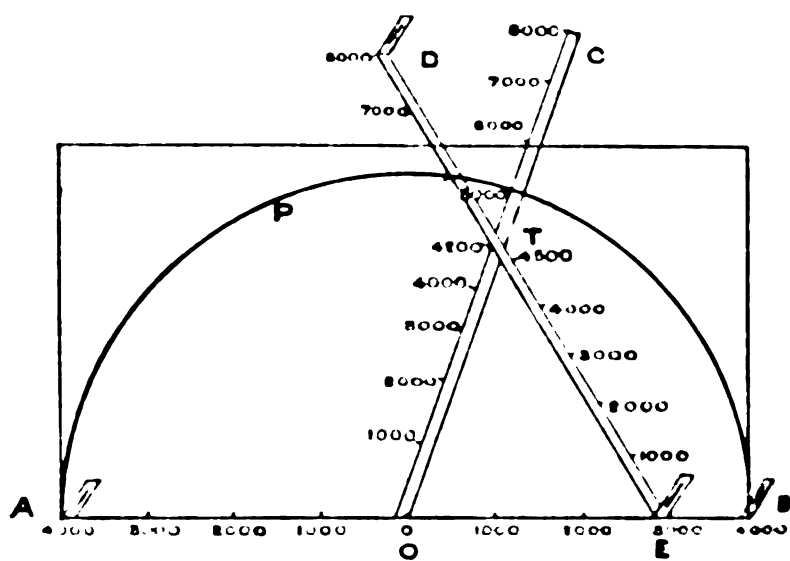
The weak point in this scheme is the question "how is the information obtained by groups to be transmitted to a central authority?" The very elasticity with which groups must work would render communication with a central authority difficult. There seems only one way out of this difficulty and that is, either for a group to return with the information that it has gained, or to send back two men by different routes, to ensure against any accident happening to one of them.

This question of the special training of selected infantry men for scouting has apparently not been taken up officially, although some regiments do now carry out some such system. If the men obtained some substantial advantage, such as extra pay, the incentive to be selected would be a valuable means of encouraging in the soldier what, after all, are qualities that we would have every soldier possess. To maintain such an organisation in the field, provision would have to be made to repair wastage in these groups arising from wounds or sickness. This could be met by training in peace a larger number of men per company, than was required for the paid establishment of company scouts.

Critics may perhaps contend that all men should be trained as scout. That of course is desirable, but there must be in every company men with superior aptitude for the work.

The selection of, and special training accorded to these men would be the best means of utilising their superior intelligence. The emulsion for the distinction and pay of the scout section, would encourage all the rank and file to acquire the qualities that are a limited boon and so desirable in these days of loose order formations.

When nothing is proposed to give higher training in scouting to selected men, the question arises "is our system the best calculated to develop the power of initiative in the soldier?" We have seen what losses among officers a battalion may suffer. We have seen what loss of control and delegation of authority to subordinate even down to the soldier, extension necessitates. The heroism of the British soldier has excited the admiration of the civilised world. I think that all will agree that the problem how to give him the best "individual training" is one that interests all soldiers, and that it would be helpful to have the subject well discussed.



TO ILLUSTRATE THE DIRECTION OF ARTILLERY FIRE &C.
by Col. G. G. Simpson, R. F. A.

THE DIRECTION OF ARTILLERY FIRE, FROM A DISTANCE; THE CONCENTRATION OF THE FIRE OF DISPERSED BATTERIES AND GUNS, AND THE EFFECT ON ARTIL- LERY TACTICS OF THE ADOPTION OF THIS SYSTEM.

BY LIEUTENANT-COLONEL G. G. SIMPSON, R.F.A.

The direction of fire from a distance and the concentration of the fire of dispersed guns, are really but different settings of the same problem.

In India, owing to the delay in issuing any accurately made instrument, such as the Field Plotter Telescope, with graduated arc, etc., we are no doubt behind-hand in this branch of practical gunnery.

Besides which, we have no Brigades working together under one permanent Commander; so that the system cannot be fairly tried for concentrating and directing the fire of dispersed Batteries.

Regular practice by the Batteries under the Commander of the Brigade, who would work the observing party in war, is necessary for even fair results; and in India we cannot yet get this, as the Brigades rarely even at practice Camps, work as such, and then seldom under their own Lieutenant Colonels.

Still much may be done in the way of directing the fire of dispersed sections or single guns.

The system seems more important for, and more applicable to, long range guns and howitzers, than to guns of Horse or light field artillery; so that the present chaotic state of artillery Brigades in this country does not militate against its use as much as at first sight might appear to be the case.

The question whether light field artillery is any longer of use has lately been discussed, but surely no one seriously entertains the idea of replacing it wholly by heavy and comparatively immobile long range guns and howitzers?

Worked as the complement of each other, heavy guns and light field guns may have surprising effects on a battlefield, but each must be content to do its own part and not try to usurp the other's functions.

The system of directing fire from a flank, or from a long distance, is in every respect suitable for heavy long range guns and howitzers, but its introduction for Horse and Field artillery, as the rule and not the rare exception, would cramp their action and prevent their being pushed forward to close range at critical moments; and though this may entail great losses, it is the only action that will give decisive results.

But with heavy Artillery this system, developed and perfected, should, by the mobility of the observing party, in a great measure annul the want of mobility inseparable from heavy guns.

render this difficult. Local reserves will be on the watch for opportunities to make local counter-attacks, or to reinforce weak points. Last, and not least, a comparatively strong General Reserve will be concealed ready to take advantage of any mistake on our part and deliver a strong counter-attack.

Before we decide to attack, we require information on certain points, if we would attack on sound principles. One elementary principle has come down from past ages, applicable alike to tactics and strategy—we must seek to be locally superior to the enemy at the decisive point. How are we to ascertain which is the decisive point? It may be some point dominating the enemy's position, or threatening his line of retreat, but the reasons that make it a decisive point will be equally, if not more, patent to the enemy and he will take special measures to guard it.

It is more likely that his weak points will be our first objective. The range of modern weapons with a good field of fire has lengthened out the time necessary to attack a position, and greatly increased the difficulties of fulfilling a condition that comes in here; *viz*—the necessity of deceiving the enemy as to the objective of our main attack. If this is not done, he will reinforce his weak points. We must chain his defenders down to all the other portions of his position, and possibly this can only be effected by troops attacking, as well as threatening. Hence, we must know the extent of his position.

I have before referred to the enemy's protection against any preparatory artillery fire. To assist and support our attacks, we must have covering fire, both of guns and infantry. Thus it is useful to know what positions afford facilities for this covering fire. Thus we are led up to the points summarised in "Combined Training" on which information is required, which are,—

- (1) The extent of the position.
- (2) Its weak points.
- (3) The key of the position.
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It would be desirable also to know the locality of the enemy's General Reserves. When his final counter-attack comes, it is on our General Reserve, aided by artillery fire and, possibly, by the rapid transfer of mobile troops, that the task of meeting it will fall. "Combined Training" says "the assailant will base his plan of attack on as thorough a reconnaissance of the enemy's position as possible." We have seen on what points information is required and why it is required. The attempt that I have made to picture what the defenders can do to baffle us will, I hope, indicate some of the difficulties of the problem. We must drive in the false front. Even then no smoke will betray positions, no heads will show against the sky line. All troops will be concealed and a smiling landscape will give no indication of the lines that will pour out a rain of lead.

How is a thorough reconnaissance to be effected? Let us turn to our guides for indication of the means by which it may be done.

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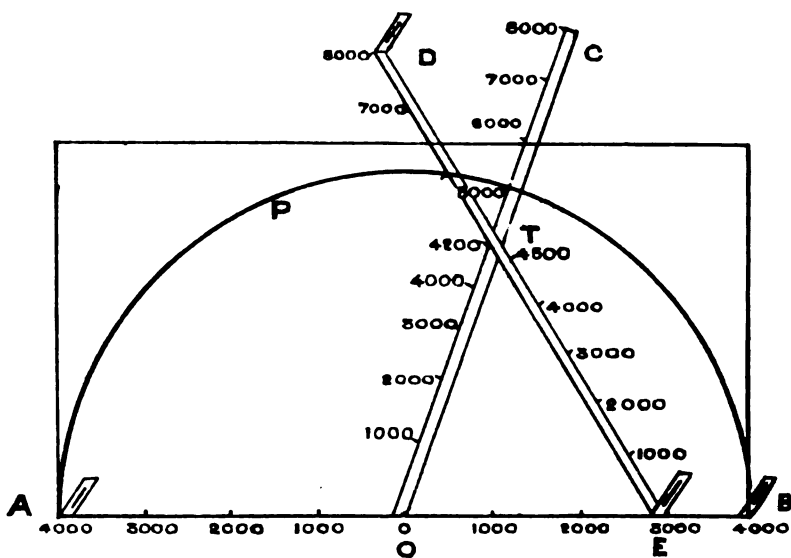
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But with heavy Artillery this system, developed and perfected, should, by the mobility of the observing party, in a great measure annul the want of mobility inseparable from heavy guns.

A good many schemes have been tried and found to work well in this country.

The first, I think, was that of Major H. R. Cooke, R. G. A.

This is a system of aiming posts and was fully described in a pamphlet sent round to all Batteries.

It answers well for the direction of fire from a distant flank of a gun, or a battery not dispersed, but it is hardly suitable for concentrating the fire of batteries or of several guns dispersed.

The other plans for laying out the line of fire of guns from a distance, with an observing party, are mostly by the plane table, or an adaptation of its principles, or with a pocket sextant such adaptations are in use here and seem to answer well in actual practice.

They have been made sufficiently portable for use with any class of battery, so that the chief objection to them has been overcome.

The first consists of small plane-tables on tripods about 10" by 6", one for each battery or gun, and one for the observing party.

(See Sketch.)

At A. B. E. and D. are plane table sights, screws, or pins which do as well.

A. B. is laid by the observing party on the battery and by the battery on the observing party. A. P. B. is an arc graduated to half degrees.

A. B. O. C. E. D. are equal scales of yards.

The Rangetakers with the observing party take the range to the target and the distance to the battery. Say range 4,500 yards, distance to battery 2,500 yards.

The observer moves the scale E. D. to 2,500 yards on A. B. and directs E. D. on the target.

He then cuts the scale G. D. at 4,500 yards by the similarly graduated scale O. C.

He reads off the battery range O. T. say 4,200 yards, and the angle on the arc where O. C. cuts it, and signals these to the battery, batteries, single guns or sections.

The battery or gun commander at once puts out his aiming posts and gives out the range signalled.

The effect of each shot must of course be signalled, and for this purpose a pair of signallers must accompany the observing party from each battery, section or gun.

Another form of the same instrument, which is even cheaper and more portable, is now being tried. This consists entirely of tapes and light wooden aiming sticks.

Instead of the table and tripod, a tape 180 inches or degrees is pegged down on the ground in a semicircle. Its diameter A. B. another tape, is directed on the battery, and instead of the scales O. C. G. D. two other tapes with scales on them are used.

These run on the diameter of the semicircle by loops at O and E.

There are light aiming posts at the ends of the diameter A. B. and of the scales, for directing them on the battery and on the target.

This is very portable, but in rocky ground it cannot be used.

Of course these are makeshift instruments and do not pretend to be absolutely accurate, but as the results entirely depend with any instrument on the accuracy of the range takers, perhaps as good practical results may be expected as when using scientifically accurate telescopes and arcs.

Practically we have found that they are seldom more than one degree out, with reliable range takers.

Any non-commissioned officer can learn to use them in a few lessons, as there is nothing scientific or complicated about them.

They can be readily used for the direction of the line of fire of several dispersed guns or batteries.

The plane-table, however, acts best for two or more guns or batteries as the base can be more quickly directed on each in succession. When once a line of fire is laid out, any part of the Field can at once be switched on to by the use of long deflection bars.

The adoption and perfecting of any scheme for directing artillery fire from a distance suggests new ideas in the choice of positions, especially for long range guns and Howitzers.

For what is required, when using this method of fire direction, is, not to command a view over the country from the guns, but from the observing party.

The object is to see from the observing party and to conceal the guns.

Although the observing party must be on as commanding a point as possible, the positions of the guns should now be chosen for their unobtrusiveness and unlikelihood, and, therefore, instead of choosing a commanding hill, they may better be hidden in some shallow, unsuspected and unmapped depression in a low-lying flat part of the battle field.

Undoubtedly such a position would have the advantage of being almost impossible to locate, and the saving of time and labour in taking a heavy gun or howitzer into such a position would be immense.

Getting a big gun up a big hill may mean days, and certainly must mean hours of labour. During all this time its services and those of the large working party employed to move it are lost.

So long as the observing party can see the country, there is no need for the gun Commanders to see more than their own signallers who are with the observing party.

There are so many drawbacks to the system when applied to Horse and Field artillery, that it should, as a rule, only be used for guns of long range and howitzers, which can be kept far back from the firing line.

There must always be a great deal of dead ground in front of these guns, at any rate within short and medium range of guns of flat trajectory. This would necessitate very large escorts were the guns pushed on to anything like decisive ranges.

With practice, the rate of fire from heavy guns directed from a distance should, when the range and fuze are found, be nearly as rapid as in direct fire, and it ought to be more accurate, as the observation

will be from a point nearer the target, and all elevation will be by clinometer. But to bracket a target and find the fuze will, with the best of signalling, be longer than when observing from the gun position.

For a moving target, this system might give fair results, but only when the target was approaching or retiring directly along the line of fire. This is, of course, quite unlikely to happen in actual war, except when a road or defile compels an advance or retirement directly towards or away from the guns.

The observing party ought to give timely warning of danger and the guns will be very hard to locate.

Still, in positions such as above described, there must be danger of surprise if guns are pushed forward. The system should therefore be sparingly applied to Horse and light Field guns, which, to have their full effect, must be pushed on in close support of the infantry at some time, however long their extreme range may be. And when so sent to the front, they must be more effective and less liable to surprise, when they command all possible ground to their front or flanks, and so can seize fleeting opportunities.

When guns become dependent on observing parties, these take the place of the layers and must therefore be handled with great care and skill. In going into position, their movements should be concealed by every device from the enemy. Signallers communicating with the guns must keep out of sight, or the party may be destroyed by having infantry or artillery fire concentrated on it, and the services of the gun lost until it is replaced.

It will therefore be well to have a second observing party in reserve.

To fulfil to the utmost its object, the observing party must be handled with great daring and pushed well to the front, for the further they can get to the front, the better they can carry out their purpose; the effect of shell can be more accurately observed; critical points can be attacked as the battle progresses.

There will be no doubt as to when to increase the elevation, as the infantry attack nears the point of the enemy's position on which the shell are falling, whilst the wishes of the Commander can be conveyed to the observing party without difficulty.

A really good observing party will want special training in several lines.

They should have the instinct of the stalker to reach their post undetected by their quarry, and must know, by map or judgment of country, the best station to attain.

They will require plenty of nerve and resolution to get such a post, hold it, and signal and observe coolly and accurately even under close and hot fire. With enterprising and skilful officers and men, quick and efficient signallers which we shall now soon again get in the Royal Artillery, great results might be attained by this system; and it may revolutionise our ideas of a good artillery position for long range guns and howitzers, and, moreover, when fully developed and perfected, will in a great measure remove the greatest disadvantage of heavy Field artillery which is its want of mobility.

FINIS EQUI !

BY CAPTAIN I. FITZGERALD-LEE, 1ST PUNJAB VOLUNTEER
RIFLES.

There has been a long distance ride in France, and the usual comments have followed in all the newspapers. I have never known anything in its way so amusing, and at the same time so little creditable to our self-respect, or our national character, as the howl of horror and wrathful indignation which arose from a large section of the kindhearted, but fussy, British public on the occasion of the long distance ride from Berlin to Vienna a few years ago. Now, when the French have organised a similar competition, the same outburst of feeling is repeated and intensified ; and an enterprising British officer who took part in the ride is looked upon as something worse than a murderer.

People who will insist on looking at a thing only from one point of view never think of asking themselves whether something may not be learnt by approaching the subject from a different point of view. Now, if we look at these long distance rides free from sentimental bias, we shall find that there are some useful and interesting lessons to be learnt from them.

Everything done by the military authorities in Germany and by the officers of the German army has an object in view, a military object, and, above all, a practical object. "*Alles was wir treiben*," said Count Häseler, "*muss einen kriegsaweck haben*" (everything that we carry out must have a war object in view.) This truth slipped out in the Count's speech, and he was made to regret his indiscretion ; he was penalised for the exposed card. But he only expressed in words the thoughts and sentiments of every man on the chief staff in Berlin.

The ride from Berlin to Vienna was undertaken and carried out in view of a certain *kriegsaweck*, and it was attended with the most important results. It would be well to try to find out what these practical results were.

In the science and practice of modern war, if there is one thing more important than another, that thing is speedy and accurate information. Mobility is, of course, a matter of the highest importance ; so is discipline, so is steady and accurate shooting, but information stands first. Without this, all the lessons which have been taught, and perhaps learnt, on the barrack square and at manœuvres are practically worthless. Now, in order to obtain timely information over any distance in the theatre of war, the telegraph and the telephone can do a great deal. Wireless telegraphy may be left out of the question altogether as being too clumsy and intricate, requiring elaborate preparation, liable to be tapped and otherwise interfered with, and thus, under the present circumstances at least, entirely unsuited to the operations of modern war. The conveying of messages is in itself a very small *kriegsaweck* ; the message, to be of

any use, must come at the right time, to the right place and to the right man—this is the perfection of intelligence. But, on the other hand, the perfection of mobility is the conveying of men and material to the right place at the right time. Activity in the movement and rapidity in the employment of even small bodies of troops, are equivalent to an enormous increase in their effective force. "The victory" said Napoleon, "is to that man who can bring his force to bear on a particular point at the right moment." And this is just as true to-day, as it was when Soult carried the heights of Pratzen and Ney swept through the blazing lanes of Friedland.

The means which we possess at present for conveying men and material in war are, generally speaking, three in number: the railway, the horse, and the feet of marching men. Camels and elephants are local and luxurious; steamers and river boats we may call accidental; ekkas, tongas, and carts in general, are very difficult to procure in anything like sufficient numbers; so that we may leave out all these. Of the first three mentioned, the railway is the easiest, and, up to the present, the most expeditious and, therefore, the best; but railways have their limits and their weak points even in a land of strategic railways like Germany. A railway may be easily rendered not only useless, but a positive danger to the side employing it in time of war; bridges may be blown up and tunnels blown down; commanders may be tempted, nay compelled, to bug a line of railway to their severe loss, when another route would have been much better for the attainment of their object.

Going on foot is a tedious and wearying performance, now confined to uncivilised countries and lands where there are no railways to speak of. As far as the horse is concerned, he has been proved useful with those who know how to make the best of him, but everything points to his becoming every day of less consequence in the operations of war; his day is past; he, like the railway, has his limits, and it was these limits which were fairly discovered for the first time in the long distance ride from Berlin to Vienna.

The distance between these two cities is about six hundred kilometres. I know the road; it is fairly level nearly the whole way, well made, but, in parts, rather hard for horses. For artillery it would be the perfection of a road. The railway between the two cities is roughly about the same length as the road. An ordinary express train covers this distance in sixteen hours; a troop train would take much longer. The results of the long distance ride go to prove that a horse, at his very best, can do it in seventy-two hours, and it is officially laid down that the average foot-soldier could get over it in one hundred and forty-five hours.

From this we see that the cavalry man in the long run, and with everything in his favour, goes only twice as fast as the foot-soldier, and that the train goes four-and-a-half times as fast as the horse. I shall here take the liberty of introducing a new element into this competition, another means of locomotion, a mechanical one. Let us find where the bicycle comes in. I can prove that it comes in about half way between the train and the horse.

The average cyclist can do, and has done, the distance from Berlin to Vienna in thirty-two hours. Professional cyclists have done it in twenty-four hours, but for the purpose I have in view, I shall leave out the professional and deal only with the average, untrained man whose time is thirty-two hours.

We see that the cyclist is half as fast as the express train, and very nearly as fast as the troop train, especially if we take the fastest cyclist and the slowest troop train. He is, for a long distance, more than twice as fast as the horse, and, for any distance, long or short, more than four times as fast as the foot-soldier.

The average time which the train takes to do a kilometre (1,093 English yards) is a minute and a half, the cyclist does it in three minutes, the horse in seven, and the foot-soldier in fifteen. It will be worth while to go into these facts and figures carefully. For the first four kilometres the horse can keep up an average of one kilometre in a minute and a-half, a rate of speed which is equal to that of the train and twice as fast as the cyclist. Good for the horse so far. But when it comes to eight—ten—twelve kilometres, the cyclist is beginning to creep up; at seventeen or eighteen he is level with the horse, but at twenty the horse is nowhere.

All our best knowledge is a matter of experience, and these results which I have laid down are established by experience beyond all manner of doubt. Anybody who doubts it can very easily put it to the test. There are a great many sporting men and cyclists in India, let any of them test these results on a fairly good road; it will be found that there is not a horse in all the land which can beat the average cyclist in a twelve or fourteen mile race. Very few horses will be able to win a twelve mile race of this sort, but when it comes to fifteen miles or more, there is no quadruped living, except perhaps the reindeer, able to beat a cyclist for this distance of road.

Even as late as twenty or thirty years ago, anybody who was bold enough to assert that a man on wheels, by his own bodily exertion alone, could travel twice as fast as a horse, would have been looked upon as a man who allowed his imagination rather a loose rein, but here we are now face to face with this established fact, that for a long distance the horse is no match for the cyclist, and that in any competition between the two, the horse is useless after such a short distance as twelve miles. And still more, while the cyclist, after a long run, is fit and ready to repeat his journey next day at the latest, the horse, after his long ride, may be never fit to ride again. On the occasion of the long distance ride, many dead horses were to be met with along the road; those which were not dead were broken down; and many of the riders were laid up, sick and sore, for many days afterwards. But the cyclists went spinning along merrily, much better and healthier after their ride than before it.

It takes half a year to teach a man to ride a horse; any man can learn to ride a bicycle in half-an-hour. The bicycle does not require breathing-time, rest, water, food, or a constant special attendant; it never suffers from lameness, stumbles, staggers, soreness or sick-

ness of any sort ; it neither kicks, bites, nor bolts, it takes up very little room, comes and goes silently, can travel by night as swiftly and safely as by day, does not raise clouds of dust by which its presence may be betrayed, is easily hidden and easily carried across fields, bad ground, hedges, or any ordinary obstacle ; it is much cheaper than a horse and far more lasting. When we take all these things into consideration, we cannot help being surprised that such a machine is not made more practically useful in war.

For the important duties of collecting and transmitting information, the cavalry man, or the mounted infantry man, is a long way behind the cyclist. For taking advantage of the information so transmitted by making a sudden dash on a weak point or unprotected flank, the cyclist is the best. When the cyclist comes to the scene of action he needs nobody to hold his horse. Every man of a cyclist company can step into the firing line. Where there is a point of tactical importance to be gained and held, the cyclist can get to it quicker than any other fighting man, even were it forty miles away. And thus can be said of him, what cannot be said of any other man—he is useful in strategy as well as in tactics. A company of cyclists is altogether superior to one of mounted infantry, as a supplement to a body of regular cavalry, as an escort to artillery, or for worrying the advance of a body of hostile infantry. In this last situation, when properly handled, they could be made into a regular swarm of hornets. The sudden and silent appearance of the cyclist, his equally sudden vanishing away out of sight, his complete independence, and particularly the fact that he is neither seen nor heard by night, raise his value as a fighting machine, much higher than that of any man on horseback. On ordinary rough ground he can lay his machine flat behind a stone a few inches high, in a furrow, in a ditch, anywhere, and a company of cyclists can stand in a field of wheat or sugarcane, so that nobody will know that any one is there. When cavalry fight on foot, and the fight is suddenly broken off, it is sometimes found very difficult even with the best trained horses, to mount quickly and get away, but with the iron horse there is no difficulty whatever. Moreover, the cyclist on the retreat from any body of troops can always exactly tell how far away it is by a very simple arrangement for marking the revolutions of his wheel. If a cyclist scout comes on a body of infantry on the march, his company can make themselves very troublesome to the men going on foot. The men on wheels can always find the men on foot, and find out all about them ; the foot-soldier can never find out anything about the cyclist. Whilst the former is never at ease, day or night, when worried by a well-managed troop of cyclists, and while he tramps wearily along, the cyclist speeds gaily and comfortably forward, enjoying the cool breeze, which, even in a hot climate, is created by his speed. Any good leader of men, with a cavalry division, a few batteries of horse artillery, a battalion of cyclists, a cyclist pontoon column with aluminium pontoons, can go all over Europe or India, straight for the enemy wherever he may be, and strike a sudden terror into him when he is found.

If war is carried on in mountainous countries, in places where there are bad roads, or no roads at all, it may be asked what could be done with cyclists under these circumstances? Let us take, as an example, a war in the Khyber Hills. The cycles are put safely into a depôt at Peshawar or Jumrood; the cyclists fall into the ranks with the infantry; and it will be found that they have better lungs and legs for mountain warfare than any other men in the army. If they have been at all well trained there is no fear that they will be backward in climbing the hills, in taking cover, or in the final rush. When fighting in the plains, where there are good roads leading to all the principal places, they will be invaluable for conveying light transport, ammunition, or supplies, or for dashing up to and supporting a weak point.

Let us go back to 1870, to Vionville; Alvensleben began to fight at half past four in the morning against the overwhelming numbers of the French, and for four long hours he had to keep up his hard fighting without any hope of assistance. If at that time the First and Second German Armies had had a few cyclist battalions, these could have come up to assist Alvensleben with the greatest ease, fresh and in full vigour. Now Germany, or to be more correct, Prussia, has more than once surprised the world in matters of war. Her introduction of the iron ramrod in 1741, and the breech-loader in 1866, were changes of the greatest importance. It is quite possible that before long we shall see her organising battalions of cyclists, with orders laid down for them something like this—On the day of battle the cyclists are to be made use of, first of all for the purposes of reconnoitring, with the express warning that they must not allow themselves to be drawn into a fight; having performed this duty, they are to withdraw and keep at a safe and convenient distance and in a good position for reinforcing, any weak or hard-pressed point of the fighting-line.

Should anybody ask where are all the cycles to come from, I should reply by asking what is being done at Enfield or Dum-dum? When we remember that for the last thirty years our war authorities have done nothing but think and plan and write about calibre, powder, bullet, range, trajectory, and penetration, all for the purpose of getting the best rifle, we cannot, at the same time forget that in the last great war, 1870-71, the side which had the best rifle suffered the severest defeat of modern times. There is no denying this important fact; over and over again has it been stated by the highest military authorities in Germany that the *chassepot* was far better than the *werder*, or the *mauser*, or any other rifles the Germans had. And yet the men behind the *chassepot* were defeated and pursued all over their own country by men with an inferior rifle. Ninety thousand of them with their *chassepots* surrendered at Sedan to sixty thousand Germans; nearly two hundred thousand of them surrendered, at Metz, to a force not nearly so large in effective fighting strength. Of the army which had the best rifle, twelve thousand officers and three hundred and seventy thousand men were made prisoners. Many reasons can be, and have

been given, for this extraordinary result, unheard of up to that time in the history of war, but nobody has ever been so bold as to give the superiority of the French rifle as a reason. The main causes of the terrible defeat of the French must be sought elsewhere—bad leading, want of self-confidence and self-control, which means want of discipline, but never want of good rifles.

The worship of the rifle, and devotion to the solution of the problem of how to kill a man mathematically, have been, and are, the main articles in the cult of the modern leaders in war. It is heresy of the blackest sort to think of introducing anything else, so that I fear the cycle will have to wait until it becomes fashionable.

In all civilised countries there are no such votaries of precedent as military men, none so blind or so bigoted in opposing anything which looks like innovation. When, in the wars of the Commonwealth, some of Ireton's infantry began to fire the musket from the shoulder instead of resting it on a fork, this was attributed to laziness, the men were taken out of the ranks, sent to the rear, and severely flogged. When the needle-gun was first introduced into the Prussian army, the new firearm became the subject of great mirth in Vienna, but the Austrians found it by no means a laughing-matter when they made its acquaintance on the fatal field of "Königgrätz." When the lance was done away with in the Russian regular army, and the Dragoon regiments taught to fight on foot, many an old, white headed, *Polkovnik* shook his head dolefully and swore that "the service was going to the dogs, Sir." Nor have we, ourselves, shown very great inclination for any important innovation. It was fully twelve years from the first time the question was raised that any thing was done in the way of organising a body of mounted infantry; and even then it was only taken up in a half hearted, amateurish sort of way. To hope, therefore, that we shall take the lead in recognizing and reaping benefits to be derived from the very patent advantages of the cycle is, perhaps, to be over sanguine. I am well aware that there are already such things as cyclist corps sometimes seen at manœuvres. But nobody ever takes them seriously. They are looked upon with smiles. Has any man ever seen them mentioned in written orders? No, they are absolutely ignored. I well remember the great review which was held at Aldershot in August 1888, before the German Emperor. There were more than eight hundred cyclists among the troops, and not one of them was seen the whole day. I asked the officer in charge of them what he had been doing that we had not seen them. Oh! he had been "sent out Farnborough way to report on any movements he observed, and to give information!" The roads in England are particularly suitable for the manœuvres of wheel companies, but they are in this respect far inferior to the long level roads of India, from Calcutta to Peshawar, from Umballa to Madras. Indeed, there is no country in the world so well suited for moving quickly about on bicycles as India. Anywhere all over the plains the cyclist is invaluable, and for all the practical purposes of war, far superior to the horse. It is easier to support a man than a horse. A sore back on the horse is a much more serious

thing than a blister on a man's foot. In extended operations of war, the man always holds out, especially under trying circumstances, longer than the horse. In times of want and difficulty, even under ordinary hardships, the horse is the first to break down. On the retreat from Moscow all the horses died. In the forced marches from Spain to Germany after this retreat, the French regiments lost sixty per cent of their horses, and, with regard to this, it must be remembered that the French cavalry-man was then, as he has always been, particularly careful of his horse. He is taught to do a great many things for his horse, which an English cavalry-man is never taught. In the recent war in South Africa, the teaching which some of the Imperial Yeomanry had about horses in many cases was less than elementary. We all know the result; the whole world knows it. No department need send to South America or Austria for a well made cycle. There is a great deal said and written just now about encouraging Home trade, and the cycle industry is one of the largest in England. By the demand from the army for a large number of cycles the English home manufacture would be encouraged; our own money would go into our own pockets; the British workman and the clever Indian mechanic would flourish. Of course, bad bicycles would still be made, here and there, but they need not be bought; and the contractor who has to supply them will, for his own advantage, give good ones.

Anybody who saw and observed the decided victory of the wheel over the horse in the long distance ride from Berlin to Vienna, must have exclaimed to himself: *Finis equi*! alas the poor horse! That is the end of him. He did good work in his day, but his day is past. He is a noble animal, and there was no sight so grand to behold, as cavalry charges, like those of Zeydlitz, Kellerman, and Murat. But latterly there have been also cavalry charges, for example, at Balaklava, Mars-la-Tour, and on the plateau of Illy, and they were all complete failures. Not failures, I acknowledge, from a sentimental point of view; the story of the charge of the Light Brigade will live for ever in English, as that of Bredow's Brigade will in German, and the name of the gallant Marguerite in French; but they accomplished little or nothing, practically, and we are no longer sentimental; we cannot afford it, we must be deadly in earnest. The beautiful ship with its tall masts and its white sails shining in the sunlight, was one of the most beautiful sights the eyes of man ever rested upon; but the squat, dirty looking, noisy, evilsmelling steamboat, with ugly black clouds of smoke above it and about it and behind it, has ousted the white, graceful "Witch of the Wave" and for ever consigned her to oblivion. It must be the same with the horse and the cycle, sooner or later, in the operations of war. He will be a bold man who introduces the cycle to its proper place in a campaign: he will expose himself to jeers and abuse; it well behoves him, therefore, to go gently to work. When the potato was first introduced into Europe, this very good and wholesome article of food was looked upon with disgust in Germany. At last the people were induced to cultivate it, because the ladies made it the fashion to wear the blossom of the potato-stalk in their hats and bonnets.

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BY LIEUTENANT-COLONEL F. F. R. BURGESS, INDIAN ARMY.

About two years ago there appeared in this journal a note of some experiments made by me with reduced charges for the .303 service rifle, which I thought would be found useful for the instruction of recruits and indifferent shots.

It will be seen from the accompanying extract from the New York "Fishing and Shooting" that the United States Marine Corps has adopted reduced charges for short range or gallery practice, very similar to those I experimented with.

As the calibre of their service rifle, 30 inch, is very nearly the same as ours, the bullet adopted by them ought to shoot very well in our rifle if made of .313 inch diameter instead of .310 inch.

The mould used by me for the .303 rifle cast a bullet of .311 in diameter, weighing 160 grains solid, or 145 hollow pointed, of Martini Henry lead. This made very good practice at 100 yards with a charge of 7 grains of amberite, which probably gave a muzzle velocity of about 900 foot seconds. The 4-grain charge used by the Americans for the lighter 87-grain bullet adopted by them, probably gives similar ballistic results, quite good enough for short range practice.

These reduced charges are most useful for instructional purposes. They fulfil all the purposes of the Morris tube without, like the latter, altering the weight of the rifle and give far greater accuracy. They do not in any way damage the rifle.

Loading tools to suit the .303 ammunition could easily be imported from the States and the refilling of the old fired cases would be a useful and interesting occupation for the men in their leisure time.

Extract from the New York "Fishing and Shooting."

Pursuant to an order from Brigadier General G. F. Elliot of the United States Marine Corps, Major Rufus H. Lutz and other officers of the Marine Corps have been conducting a series of experiments with various buoys and charges of different patterns in view of securing a satisfactory charge for short range practice. Among the buoys submitted was one designed by the Ideal Mfg. Co. of New Haven, Conn. designated as No. 308,245 which is here illustrated. (See diagram.)

The forward edge of the front band is left sharp, and acts as a scraper, which cleans the reservoir left in the barrel and deposits it in the front groove, thus cleaning the barrel each shot and a regular full bore case is later being received and put in production was found to be preferable to the short range shot with the grove over the muzzle. The regular service shells after having been fired are returned to the original shape. The muzzle of the shell is then expanded to 3 1/2 inch and the barrel is sized and sized to that diameter with an implement made especially for that purpose. The bullet is then cast in a snug fit in the muzzle of the shell on a charge of 4 grains of Luffin and Rand's Unique powder, measured with the Ideal Universal powder measure No. 5, measure set at 7 grains, still not cramped. The regular short range practice distance is 75 feet. With this ammunition on the shooting was found to be very accurate and there was no fouling of the barrel.

To supply the various Marine Corps stations with a complete outfit for preparing this ammunition, an order has been given to the Lee-Atty. Co., New Haven, Conn., for one set for each station. A list to consist of the following: One ideal loading press with stops and screws; hull resizing; loading chamber; reswaging; pans; co-spring; stud; lever, handle and base; shell for, de-capiter and mouth square with shells; powder 110, 100 in diameter; one ideal powder measure No. 9; one ideal can shaker and a set for bullet No. 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1000, 1002, 1004, 1006, 1008, 1010, 1012, 1014, 1016, 1018, 1020, 1022, 1024, 1026, 1028, 1030, 1032, 1034, 1036, 1038, 1040, 1042, 1044, 1046, 1048, 1050, 1052, 1054, 1056, 1058, 1060, 1062, 1064, 1066, 1068, 1070, 1072, 1074, 1076, 1078, 1080, 1082, 1084, 1086, 1088, 1090, 1092, 1094, 1096, 1098, 1100, 1102, 1104, 1106, 1108, 1110, 1112, 1114, 1116, 1118, 1120, 1122, 1124, 1126, 1128, 1130, 1132, 1134, 1136, 1138, 1140, 1142, 1144, 1146, 1148, 1150, 1152, 1154, 1156, 1158, 1160, 1162, 1164, 1166, 1168, 1170, 1172, 1174, 1176, 1178, 1180, 1182, 1184, 1186, 1188, 1190, 1192, 1194, 1196, 1198, 1200, 1202, 1204, 1206, 1208, 1210, 1212, 1214, 1216, 1218, 1220, 1222, 1224, 1226, 1228, 1230, 1232, 1234, 1236, 1238, 1240, 1242, 1244, 1246, 1248, 1250, 1252, 1254, 1256, 1258, 1260, 1262, 1264, 1266, 1268, 1270, 1272, 1274, 1276, 1278, 1280, 1282, 1284, 1286, 1288, 1290, 1292, 1294, 1296, 1298, 1300, 1302, 1304, 1306, 1308, 1310, 1312, 1314, 1316, 1318, 1320, 1322, 1324, 1326, 1328, 1330, 1332, 1334, 1336, 1338, 1340, 1342, 1344, 1346, 1348, 1350, 1352, 1354, 1356, 1358, 1360, 1362, 1364, 1366, 1368, 1370, 1372, 1374, 1376, 1378, 1380, 1382, 1384, 1386, 1388, 1390, 1392, 1394, 1396, 1398, 1400, 1402, 1404, 1406, 1408, 1410, 1412, 1414, 1416, 1418, 1420, 1422, 1424, 1426, 1428, 1430, 1432, 1434, 1436, 1438, 1440, 1442, 1444, 1446, 1448, 1450, 1452, 1454, 1456, 1458, 1460, 1462, 1464, 1466, 1468, 1470, 1472, 1474, 1476, 1478, 1480, 1482, 1484, 1486, 1488, 1490, 1492, 1494, 1496, 1498, 1500, 1502, 1504, 1506, 1508, 1510, 1512, 1514, 1516, 1518, 1520, 1522, 152

THE EDUCATION OF ENGLISH OFFICERS.

TRANSLATED BY COLONEL J. L. KEIR, R.F.A. FROM THE GERMAN.

The English officer does not take the same place in public life that an officer does in other countries. This is attributable to several causes.

In the first place, the English professional army is such a small one, that there are comparatively few officers.

In the second, an officer is seldom seen in uniform; as soon as possible after the conclusion of his duty he puts on plain clothes, and does not therefore attract attention.

In the third, he lives in a re-tired manner unknown to his brother in arms of other countries, who would probably find a life of this kind disagreeable.

In such a small army as the English, one would have thought that the provision of officers could present no difficulties. Nevertheless the British nation has skilfully managed to prepare obstacles for itself. There is certainly suitable material at hand and in sufficient quantity.

The younger sons of the "gentry" (somewhat corresponding to our lesser nobility), as well as the official class, are in every way suitable for officers. Yet with regard to this there are many problems the solution of which is governed by the economical conditions peculiar



Woolwich for the artillery and engineers, Sandhurst for the infantry and cavalry. A special training is, however, essential, because the competition is considerable, and the examinations are difficult. It is therefore necessary for him to go to a preparatory school, in other words to a crammer. Unfortunately, it soon becomes plain that the

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The younger sons of the "gentry" (somewhat corresponding to our lesser nobility), as well as the official class, are in every way suitable for officers. Yet with regard to this there are many problems the solution of which is governed by the economical conditions peculiar to England. The "squire" (lord of the manor) gives his sons the same education that was given to him. The boys go from 13 to 18 to one of the public schools (Eton, Winchester, Rugby and others) in order that they may spend some years at Oxford or Cambridge, in whichever the squire may have studied. In the meanwhile, it has not been settled what is to become of them. The eldest gets the property, and one of the others, who may display some inclination that way, becomes the local parson. The others must choose some other profession, the army, the navy, or the law.

The sons of the official class are much less favourably situated. There is very little to inherit, and there is no prospect of a family living. In this case also the boys are placed at a public school where they learn, before everything else, cricket, football and other athletic games. When they have finished their public school life they must decide on a career. Much anxiety now arises, because the further cost of education, be it at a university or at a preparatory school for the army, becomes a subject for serious reflection.

Well, the boy decides to become a soldier! Several ways are open to him. The usual one is by entering one of the military schools, Woolwich for the artillery and engineers, Sandhurst for the infantry and cavalry. A special training is, however, essential, because the competition is considerable, and the examinations are difficult. It is therefore necessary for him to go to a preparatory school, in other words to a crammer. Unfortunately, it soon becomes plain that the

length of time spent at school has not been profitably employed, that even spelling, which in the English language presents many obstacles, has yet to be learnt ; in fact many candidates are disqualified in it.

At least a year is necessary in order to prepare for either of these entrance examinations. As the expenses amount to nearly 600 marks a month, the required preparation is not within the reach of the sons of many of the official class, and therefore a military career is not open to them—unless indeed the boy determines on a venture, that is, he tries to gain a commission through the ranks.

Another way, which was formerly rather popular, led through the militia to a commission in the regular army, and the course was frequently taken by those who were not able to pass the entrance examination to Woolwich or Sandhurst. The procedure is as follows. In the first place an application has to be made to a Lord Lieutenant for a commission as second-lieutenant in the militia of his county. Should this petition be granted after the above-named official has made inquiries relative to the relations of the applicant, the latter must once more go to a crammer in order there to devote himself to all kinds of technical studies, which he would have begun by learning at Sandhurst. These studies are purely theoretical. The practical part of his work is taught as follows. The young militia officer goes for sometime to the *depôt* of the regiment to which his militia battalion belongs, and is there, in the ranks with the recruits of the regular or militia battalion of his regiment, and in his officer's uniform, instructed by under-officers. This instruction is of the most meagre description. The adjutant, the only officer in the *depôt* who as a rule displays any keenness about his work, is so continuously employed with endless office work that he has no time for such trivial affairs as the training of militia officers. After completing recruits training, (*sic*), the young officer is examined in the rudiments of his profession by a board assembled for this purpose. His further practical instruction is limited to two trainings with his battalion, for until he goes through these he is not allowed to present himself for the theoretical examination for entrance into the regular army. That these two trainings (each of 28 days) are insisted on seems extraordinary, for whoever has attended even one of them, cannot fail to have been struck by their want of the most important military essentials. Many of the officers in the militia are old gentlemen, who are retired officers from the regular army, and it is no uncommon thing to find former cavalry officers in infantry battalions. These old cavalry men often display that contempt with which the officer of a mediocre cavalry regiment loves to regard everything that walks. Others of the old gentlemen are, on the other hand, according to local circumstances, land-owners, merchants, lawyers or merely loafers !

The younger officers have hitherto been for the most part candidates for commissions in the regular army. Those unable to pass the prescribed examination, either give up entirely a military career, or choose some other profession, while they remain in the militia and content themselves by treating the yearly training as a mere outing.

Some changes have recently been made in the entrance examination from the militia into the regular army. The number of commissions has been reduced by one half. The result of this is, that many militia battalions must, for the future, be prepared for a reduction in the supply of officers, and already there are considerable gaps in the subalterns list.

Although some capable officers come from the militia, the fact must be plain to all, that, as a rule, the indifferent character of the training cannot but injuriously affect the officers as a body.

The men of the militia show at times very little inclination to take part in the annual training, for example in an agricultural district when it takes place just at the time of the hay harvest, and in a manufacturing one, when there happens to be an increase in the demand for workmen.

In a battalion under the normal peace strength, there is little professional zeal to be found among the non-commissioned officers, who, beyond the 28 days of the annual training, have either some other business, or do nothing at all. Certainly the officers of the militia are in their way keen enough, but here again is seen an example of national self-deception. What strikes the foreigner most of all in England is the entire want of elementary training in military matters, compared with that devoted to other occupations. The impression universally prevails, that every man who is by nature brave, is a ready-made soldier. The practical English nation ignores the fact that a careful study of military history and knowledge of the art of war, are absolutely necessary for an officer, and further, that the latest ideas in military science must be followed and, if necessary, tested. The army forms no part whatever of the people, for the enlisted soldier comes as a rule from a class, who for some reason or another are unable to compete successfully in the labour market.

Owing to the fact that every Englishman is not compelled to serve in the ranks, a boundless ignorance prevails, both with regard to army matters and military needs, which is still more plainly emphasised by the foolish obstructive tactics adopted by some members of parliament. The majority of the people are quite ignorant of the kind of life which officers lead. An officer of the Guards may sometimes be seen in uniform, and those officers who distinguish themselves in the realm of sport, are the ones best known to the public; further, the prevalent idea is that the English officer does not work for high pay. Unfortunately the salary is out of all proportion either to the cost of education for an officer's career, or to the cost of his living.

The public are at times informed through the newspapers of the many difficulties which beset an officer. In these also wonderful pictures illustrating the deeds of individual officers are to be found tastefully drawn by artists, who do not appear to possess an accurate knowledge of either their local surroundings, or their uniform and equipment. Thus a certain renown, which is rather painful for the officers, and very cheap for the public, is produced.

We will now take a glance at the existing institutions for the education of officers. As we have said before, the academy at

Woolwich is for the artillery and engineers, that of Sandhurst for the infantry and cavalry. That the former provides a suitable training is proved by the capability of the English artillery and engineers, the officers of both of these being specially prominent as professional soldiers. Both enjoy in the English army a well earned respect, and those who saw the English artillery in action, or the Royal Engineers at work in the Boer war, will corroborate this opinion most heartily. Sandhurst prepares for the cavalry and infantry, and, till quite recently, suffered from the following disadvantages. Owing to the great expense which an officer's commission entails in the cavalry, and to the fact that the Foot Guards were anxious to choose their officers from a certain exclusive caste, a gradual falling off in the number of applicants began to be felt. It was therefore considered advisable to lower the educational standard of the candidates for these two branches, to the lowest degree. The consequence was that, although the Guards obtained the stamp of officer they required, many were able to get into the cavalry, whose mental capabilities were much below those of the infantry of the line.

The reforms since the war have, to a certain extent, removed this evil, also a well thought out and practical course has been added to the curriculum of the Sandhurst cadets.

We may therefore be content with the result of the education at Woolwich, and hopeful about that provided at Sandhurst.

The last way to an officer's commission, and one which recommends itself to many "young gentlemen," is a more difficult one; that is to say it leads from the ranks upwards.

Many a capable officer has been given to the English army in this manner. The way has, however, nothing in common with our "avantagours." The candidate enters on the same terms as an enlisted soldier, enjoys no special privileges, and must, through strenuous endeavour and blameless behaviour, forge his way through the lower ranks.

It may happen of course that the path is smoothed for a certain few by means of family interest, but apart from this it might generally be thought that such a way would be a suitable training for a future officer. In the English army, however, this is not always the case. There is no uniformity of training in the different regiments and cannot be under the existing circumstances.

In many cases for example the training of a squadron is surrounded by unsurmountable obstacles. If you take one of the cavalry regiments quartered in England, which does not belong to the 1st or 2nd (ready for active service as they are called) Army Corps, you will meet with a state of things that renders tactical training almost an impossibility. The establishment in men is far below what it should be, and the strength in horses is at a still lower ebb, so that a practical field service training of the squadron is out of the question, even when, which is seldom the case, sufficient training ground is available. To this must be added, that theoretical instruction in the English army still stands at a very low level, and that therefore the candidate during his time of service in the lower ranks is offered very little opportunity of devoting himself to the study of the higher

science of war. That he should be very keen to gain his desideratum, an officer's commission, is not to be expected of him.

The Boer war at times produced an unfavourable effect on the supply of officers, particularly in the first year of the war. After the younger officers of the militia, and the cadets of both the educational establishments had been given commissions in the regular army, the remaining gaps were apparently filled up without system. Thus many quite useless men without any training were promoted to the rank of officers, and not only placed in the infantry and cavalry, but also in the artillery. And although many of their countrymen, who had learnt a soldier's trade in the armies of other countries, offered their services; these were declined with scant courtesy. The authorities appear to have lost their heads.

A very good tone prevails in most of the English cavalry and infantry regiments, and throughout the artillery and engineers. The majority of the officers are unmarried and live together in mess houses as members of comfortable, though exclusive, clubs. When off duty, the conduct of the younger officers towards their seniors is not marked by that formality of manner which is customary among officers of other nations. In a regiment in which there is a good tone, this produces no evil consequences.

Nevertheless, in some of the less well-conducted regiments, among the younger officers (some of whom both in age and length of service approach captain's rank) youthful spirits sometimes degenerate into bad manners. Outbreaks of this kind are generally directed against some newly joined officer, who for one reason or another is distasteful to his comrades. The cause of excesses of this kind is attributable in many cases to that deep seated "snobbism" from which the English nation as a whole, and the army in particular, in all its ranks, is by no means free.

Duty is carried on with a complacency that almost approaches indifference, and sport of all kinds seems more likely to excite the zeal of the officers. Life in the service has certainly up to the present had little of interest in connection with it. The zealous officer finds many difficulties in the way of studying his profession. In the cavalry and artillery, the number of horses is not up to the strength, and in all arms there is at times a shortage in recruits. The cavalryman is not entrusted with the training of his command. There is a ridingmaster, whose status is on a par with that of the paymaster of a German regiment. This officer, with his staff of roughriders, trains remounts and teaches the recruits to ride, while to the adjutant, and his selected staff of non-commissioned officers is entrusted the *dismounted* training of the regiment.

Added to this, the officer has no personal interest in his duty, as it fails in so much, above all, in making him responsible for the training of his men. In India it is better, since there is at least sufficient training ground available. Under the above circumstances it is not to be wondered at that it is considered necessary for officers to undergo some examination before they can be promoted, as they cannot give proof of their knowledge and capacity by the successful training of their men. With regard to the reforms which are about to

be undertaken in this respect, no opinion can at present be formed; in any case, it is scarcely possible to contemplate anything more than the present conditions.

That so many English officers have progressed in spite of all difficulties, and have come to eminence, is to be attributed to their undeniable character of sportsmen. Should the reforms now in progress succeed in devising a suitable training, it may be assumed that under these more favourable circumstances the officer will apply himself to his work with zeal and devotion. Yet he has a right to expect that a certain definite prospect will be opened to him. Up to the present, few signs of this are visible.

The English officer's life in the service is by no means an easy one. Continual changes in the Standing Orders leave room to doubt whether the authorities really know exactly what they want. His purse is drained by repeated changes in his uniform, which are made under the pretence that they are to reduce his expenses. Unfortunately these attempts have, up to the present, only produced the opposite result.

The English press might do the officer some good, and at the same time gain time for the military authorities to thoroughly test their reforms; instead of by means of articles exposing abuses, (many of which show defective knowledge of the subject) raising public discontent, and wasting the time of the War Minister in Parliament by compelling him to reply to senseless questions, most of which should not be answered.

The radical reform of an army is an undertaking that cannot be carried out in one, or even in two years.

With reference to the footnote to the article on this subject which appeared in the issue of the *United Service Institution of India Journal* for January 1904, the author writes as follows :—

NEGAPATAM ;

The 3rd March 1904.

TO THE SECRETARY,

UNITED SERVICE INSTITUTION OF INDIA.

DEAR SIR,

With reference to your remark on my article "A Corps of Volunteer Officers," published in the Journal of the Institution for January 1904, (Volume XXXIII No. 154) may I observe that I don't think that what you suggest would entirely meet the case. The rules and conditions governing the Army Reserve of Officers, are of quite a different nature to those under which Officers of the Volunteer Forces serve, and gentlemen who might be prepared to accept the latter might not feel disposed to take up the former. Of course even at the present time there are some officers of the Volunteer forces whose names are also borne on the rolls of the Army Reserve of Officers.

Yours truly,

W. H. MERCER, *Major,*

86th Carnatic Infantry,

Adjt. S. I. Ry. Vol. Rifles.

PRÉCIS OF FRENCH JOURNALS.

Revue du cercle Militaire.

The issue for November 14th, commences with an article on the Senegalese rifleman, who appears to be a fine fellow, for, says the author, "brilliant deeds, instances of devotion to their chiefs, resistance to fatigue and privation," are the historical characteristics of the Senegalese battalions. These troops are recruited in the basins of the Senegal and Niger, and, for the Ivory Coast battalion, in the Kong country, comprising almost all the races of the Soudan. An interesting account is given of the voyage of one of these battalions to Madagascar. The article is concluded in the next issue, where the author sums up:—"The Senegalese *tirailleur* is not simply a black, a good or a bad negro, as in *Uncle Tom's Cabin*, but a veritable soldier. He understands discipline in the exact sense of the word, he has no trace of fear, and he obeys because he is a soldier, ... they are a brave people, of the best type."

Those who are preparing for tactical examinations may find the schemes published in this journal, of some use, as they give a variety of ground in the maps which are not always obtainable by English students. The issue for November 28th, gives the solution of a tactical scheme set in the issue of October 24th. It contains, also, another scheme for solution.

In the December number is the first part of an article which should prove of great interest to us in India in particular. This is *The Indian Empire and its Army*, by Commandant H. de Missy, who commences by saying that "at a moment when England is proceeding with the reorganization of her army, a task which presents many obstacles of which the principal is the difficulty of recruiting, it has appeared to me interesting to study the organization of the Indian army as it actually exists." Before proceeding with the main portion of his subject, the writer gives in this part, a short resumé of the British conquest of India, which as he rightly points out, "is due not solely to the heroism of the Anglo-Indian army, but also to the talents of the Governors-General, and one cannot admire too greatly the tenacity and spirit which, have characterised their actions." He contrasts the perfection of the army in India with "the army of the metropolis disorganized by the South African war." He touches on the series of revolts culminating in the great Mutiny, and points to the Delhi Durbar, when "180 detachments from all points of the Indian Empire and united on the plains of Delhi, seemed to revive the famous times when Tamerlane with his fierce soldiers marched to the conquest of India; and he refers with homage to the memory of the great Frenchman Dupleix.

An excellent and accurate review of the history of the British conquest of and struggles in India up to 1857, brings the first part of this paper to a close in the three succeeding numbers. We shall look with interest to a continuation of this series, dealing with our Indian army as it is today.

Students of the Napoleonic period will be interested in a letter of Moreau on the battle of Novi, given in the issues for December 5th and 12th. The latter number has an account of a fight between Russians and Tunguses in Manchuria, which is of topical interest. An article on Russian military life is running in the weekly numbers of this journal.

The numbers up to January 23rd have been received. The last contains a note on the relative value of Port Arthur and Vladivostok, translated from the Russian, which will perusal.

Revue de Cavalerie.

French writers generally appear to take a very sane view of the rôle of cavalry, going to no extreme, and holding neither with those who would transform all our cavalry into infantry on horseback, or the other party who would rely almost entirely on shock tactics for the mounted arm. Thus an article on "the new doctrine and the great central manœuvres" presents features of considerable interest. It will be found in the November number of this review. In the number for December it is followed up by a translation from the German, entitled "The new doctrine in the French cavalry." We have not space to refer further to these articles, which should be read in the original. A series on "Cavalry mitrailleuses" will also be found of interest, especially as it is well illustrated by photographs. This will be found in the November and December numbers, and is to be continued. Other articles, interesting to those who indulge in historical research, will be found on "The origin of the French cavalry."

R. G. BURTON, Major.

Internationale Revue ueber die gesamten Armeen und Flotten—(December 1903 to January 1904, and supplements.)—The December number though largely taken up with naval matters, announces a slight increase in the numbers of rounds allotted for musketry in the French cavalry. In view of the strong opposition to the dismounted action of cavalry existing in the French army, which was brought out in the *précis* of French papers given in the last number of this Journal, this increase is noteworthy, as showing the trend of the opinion of the French authorities. A short article also deals with the decrease of the birth rate in France. During the years 1896-1900 the augmentation for every 10,000 inhabitants was in France only 13, while in Holland it was 150, in Germany 147, and in England 116. The January number gives a description of the Radical Deputy Messimy's scheme for the reorganisation of the French army by decreasing the infantry and cavalry but increasing the artillery. The scheme further abolishes the brigade as an unit and makes the composition of an army corps consist of 3 divisions, each of 3 regiments of 3 battalions of 3 companies. The scheme being too revolutionary is not in the least likely to be accepted. This number also contains descriptions of the Austrian Railway Corps and of the new organisation of the Russian supply trains.

The 57th French supplement publishes an article on the importance of numbers in the struggle for fortified positions. The author takes as his text the three battles of Plevna and shows that the partial successes gained by the Russians were won by detachments inferior in numbers to their Turkish opponents. These successes were due to better leading. By examples from the Franco-German war of 1870-71, the value of good leading is further emphasised. The writer admits that it is not possible to be too strong on the field of battle, but points out that the desire to obtain numerical superiority must not be allowed to degenerate into an anxious count of noses, so as to interfere with the immediate seizure of any favourable opportunity, however fleeting, which may offer. The remainder of the number is taken up with a technical article on the effect of fire against armourplate, followed by a review of Lieutenant Von Wickmann's experiences in the Boer war which were noticed in the last number of this Journal.

The 58th French supplement gives a very complete review of the different systems in existence for the absorption of the recoil of guns. The author is of opinion that the system of long-recoil in the latest model by Krupp is the best. Two naval articles and a review of Budde's book on the use of the French railways made by the Germans in 1870-71 complete the number.

The 59th French supplement contains little of general interest, being filled with a long note on the German manœuvres of 1903.

The 46th German supplement is similarly taken up with a description of the Italian manœuvres of last year.

In the 47th German supplement the cavalry raids of Mensdorff, Thielemann and Tschernitschew in 1813, of Morgan, Forrest, Stuart, Sheridan and Wilson in the American Civil war, and of Gourko over the Balkans in 1877 are reviewed. The writer shows that superiority

in cavalry played an important part in the success of the operations with which these raids were connected. He points out how the improvement in rapid communication and the presence of *landwehr* troops in most countries consequent on universal service, has made the cavalry raid in the future more difficult to carry out than was the case in the past.

The 48th German supplement is given up to naval matters. It contains a comparison of the sea power of Russia and Japan, which recent events have somewhat falsified, an account of the Chinese fleet, and of the gunnery experiments against the "Belleisle".

The 49th German supplement gives a translation of the memorandum by the Dutch War Minister on the draft Bill for the rearmament of the artillery in Holland with the new model 2.95 inch long-recoil Q. F. Krupp gun.

Militär Wochenblatt (number 126 of 1903—number 13 of 1904).

In number 133 General Von Lignitz has an interesting article on the lessons to be learnt from the winter campaigns of 1870-71 and 1877-79. The cold experienced during these campaigns has often been equalled among the heights bordering our North-Western Frontier. The writer states that the terrible events of the winter of 1813 had left such an impression, that after the evil fortune of the autumn, the French nation awaited the winter of 1870-71 as an ally against the German invader, whereas in reality the winter was less felt by the hardy and better equipped Germans, than by the hastily raised French levies. Nevertheless the exposure without tents to the rigours of this winter, cost the Germans although successful, many men during the campaign of Le Maus against General Chanzy. Similarly, the outbreak of typhus and the consequent ultimate failure of the Russian forces in Turkey, was largely due to the severities of the previous winter in the Balkans, where one regiment on the Shipka Pass lost 40 *per cent.* of its strength from frost-bite. Every effort should therefore be made to preserve the health of the men, particularly by building huts whenever billeting is not possible. A large proportion of the loss on the Shipka Pass might have been avoided if huts had been built earlier. The hope, however, that the early fall of Plevna would permit an advance to be made, led to the delay in hut-building with its later serious consequences. Among various hints for fighting the cold the author recommends the use of loose half-wool under-clothing instead of all-wool, as being less liable to shrink and so less likely to interfere with the circulation of the blood, which is a fruitful source of frost-bite.

Numbers 135 to 137 contain a review by Hermann Thurn of the present condition of international law as regards submarine cables and their destruction in war. The following are the principal rules formulated by the writer—

- (1) Interference with submarine cables is only permissible within the theatre of war.
- (2) Cables which connect neutral nations are themselves neutral.

- (3) A cable which joins neutral territory to that of one of the belligerents must not be injured by this latter, nor can he put a stop to communication, except in special circumstances. Occupied territory is in these respects to be considered as the territory of the occupier. The other belligerent may only cut a cable within the zone of an effective blockade.
- (4) Cables connecting two belligerents may be cut by either.
- (5) Compensation is payable for cables used under the Roman law *jus angariæ*. This law does not hold good on belligerent soil, where cables may be used without compensation being paid.

It will be noticed that these so-called laws are formulated with a view to the advantage of a nation which, like the German, possesses but very few cables.

General Von Boguslawski lately made a statement to the effect that the Boers made little use of long-range infantry fire. In number 138 Lieutenant Gentz of the German Reserve, who fought against us in one of the three German contingents, combats this assertion and gives instances at Vaalkranz, Vet River, Sand River and at Boshrand within his own personal knowledge where such long-range fire was used by the Boers.

Numbers 2 to 5 contain a good account of the Japanese Empire and of its armed strength.

The 1st supplement for 1904 contains an account by Von Tiedemann of the battle of Omdurman.

In the 2nd supplement Major Von Tettau concludes an account of a visit to the Russian army with the sentiment "Shoulder to shoulder with our Russian neighbours". He spent two months with the Russian corps in the military district of Kiev, which for fourteen years has been commanded by General Dragomiroff. His opinions on the Russian army are interesting. He considers the senior officers to be excellent, sound soldiers who discharge their duties well and faithfully, but who in his opinion were wanting in initiative and in decision of character. The regimental officers of the 125th Kurski Infantry Regiment made a better impression, performing their duties with intelligence and interest. In the cavalry regiment also, in which he was a guest, he found a "friendly and solid tone" existing. Every morning the Commandant shook hands with all his officers, the Divisional Commander with all his regimental commandants! The bearing of the officers towards each other was unconstrained without being familiar. Major Von Tettau, however, thinks it necessary to say that though the Russian officers are certainly not fastidious in their choice of drinks, he never saw one drunk however late they might sit up over their liquor!

Of the Russian private the Major thinks very highly, considering him to be soldier-material better than that possessed by any other army. His lack of education is said to be balanced by an innate natural quickness. In addition he is willing, persevering, unassuming and contented even while undergoing the greatest hardships. An instance is

given of a march of 38 miles in 24 hours having been made during the manœuvres without any men having fallen out.

There appears to be a great want of long-service non-commissioned officers, as the Major remarks that it was rare to find a man who had extended his service. He thinks, however, that owing to the comparatively long service of the Russian army, compared to other continental armies and to the natural submissiveness of the Russian soldier, that this want is of small importance.

After seeing four Cavalry Divisions, Major Von Tettau is of opinion that the Russian cavalry is very efficient. The Russian troop-horse though small, the largest being barely 15½ hands in height, is not inferior to the German. The horses were well under control, strong and in good condition.

The Cossacks have lost much of their former excellence in horsemanship. The Cossack horse, innocent of the aids of the riding school, ridden without spurs on a snaffle bit, holding his nose high in the air and keeping no regular cadence in his paces, did not appeal to the Major's regular eye. He admits, however, that the Cossack, man and horse on account of their endurance, would be very useful for reconnoitring duties.

In the past, consequent on the system by which the Russian artillery received only such horses as were left over after the remounting of the cavalry had been completed, this arm was decidedly under-horsed. In future the remounting of the artillery is to be considered as of equal importance to that of the cavalry, and is to be undertaken by a similar agency. An improvement may therefore be looked for in the Russian artillery, whose rearmament moreover with a new and powerful quick-firing gun is almost completed.

The Russian infantry still apparently continues to be instructed in the supreme importance of the assault with the bayonet.

The 3rd Supplement contains a short historical sketch of Frederick the Great's generalship from Mollwitz to Leuthen. The author claims that the Great King, and not Napoleon, was the real originator of the modern theory of war, as exemplified in the principle of making the enemy's field army the objective, of seizing the initiative, and of concentrating all possible forces for battle. Napoleon himself has said, "Frederic the Great stands in the first rank of Generals. * * * He succeeded in doing what I never ventured to attempt."

Militär-Literatur-Zeitung (November and December 1903, and January 1904).

In the first of these numbers General Von Rohne, who is the exponent of shrapnell shell fire, criticizes very unfavourably the ideas regarding the substitution of percussion shell from small-calibre quick-firing guns for ordinary field artillery put forward in General Von Reichenau's book "*Neue Studien über die Entwicklung der Feldartillerie*" (2 marks).

In the last number Von Lossberg's "*Mit Santa Barbara in Süd-Afrika*" (2 marks) is well reviewed. Von Lossberg commanded a Boer battery in the late war.

H. W. R. SENIOR, Captain.

RUSSIAN PAPERS.

Voyennii Sbornik.—In the August to December 1903 numbers, the following are perhaps the most interesting articles:—

AUGUST 1903.

Prince Eugene Napoleon.—A continuation from the article in the July number, with a plan of the battle of *Raab* and two engravings, concludes the series on the subject.

Rôle of the Russian fleet in the war of 1877-78.—Continued from the July number. Part IV deals with the crossing of the Danube and the organisation of a fleet of steamers and rowing boats for co-operation with the army and to defend it from attacks of the Turkish fleet. Describes the torpedoes used and system of working them, etc. Part V discusses the strategical importance of the Danube, and describes the nature of the struggle for possession of the river; gives the position of the Turkish fleet in the commencement of June 1877, and details of attacks made on it by the Russians. Part VI continues the description of various skirmishes with the enemy's ships.

Historical sketch of the services of the Siberian Cossacks.—Commencing with their gradual birth in the last quarter of the 18th century from Western Cossack wanderers and settlers, this article is devoted to an account of their development into a separate Voisko, which received the name of Siberian; gives details of their history, and the campaigns in which they have taken part up to the present date.

Mounted infantry and the lessons to be learnt from the Anglo-Boer war.—Commences with a short sketch of the origin of mounted infantry in the English army and its development and services during the war in South Africa. The author in summing up gives his opinion that mounted infantry could never in any European campaign be employed under such favourable circumstances or be in such demand as under the exceptional conditions guiding the conduct of operations in South Africa. For the Russian army, he considers even the maintaining of mounted infantry cadres in peace time unnecessary, owing to the ordinary Russian peasant recruit being so accustomed to horses, that in the event of mounted infantry being required, it would be only necessary to supply the infantry with horses.

Assuming that the *raison d'être* of mounted infantry is "to increase and insure the greater independence of cavalry", the writer discusses how this can best be attained, while considering the principle followed by Peter the Great and Napoleon to this end, and in conclusion states that "this independence can best be attained, not by the formation of mounted infantry corps, but by the more extensive introduction of the infantry element into the cavalry arm."

The war training of the Sotnia.—Continued from last month; enumerates the qualifications required of it, before it can be considered fit for war, and the rôle it would be expected to play in the field.

Horse breeding in herds.—This article is devoted to the necessity of improving the stamp of Cossack horses, with the object of making them better able to hold their own with cavalry of the line. Describes Cossack horse breeding, the manner in which the Imperial Government are attempting to improve the breed, and generally describes the nature of the supply of remounts to the army.

Artillery in battle and manœuvres.—Chiefly a comparison showing up the unpractical manner in which manœuvres are usually conducted.

Along the Caspian Sea and the Persian frontier.—A continuation of traveller's notes from last month, deals with the routes from Hasan Kuli to the Arvaz Post.

The English army after the South African war.—A short account of changes brought in after the war in South Africa, dealing briefly with the supply of remounts, changes in the mobilisation system, training of troops, discipline, finance, etc.

SEPTEMBER.

Rôle of the Russian fleet in the war of 1877-78.—Continued from the previous article in the August number. Part VII describes the operations at Salin and the fights of 27th and 28th September 1877. Part VIII is devoted to the nature of the struggle on the Black Sea, and the strategical importance of these waters from their central position between the belligerents. Explains the steps taken for the defence of the Northern littoral by the Russians.

Siege of Viborg in 1710.—An account of the siege with an engraving and two sketches.

The war in the Caucasus.—This is an account of the defence of the Messeldeger Fort in the year 1853 by one of the defenders.

Is our system of musketry training up to date?—A very interesting article and full of details. Describing the necessity for instruction and drill, it takes certain points such as the manner of holding the rifle, etc., and compares the instructions on this point given in the Russian French, German, Austrian, Italian and English Musketry Regulations.

It is in fact a comparison between the systems of musketry training in the different armies.

Artillery in battle and manœuvres.—A continuation from the August number.

Along the Caspian Sea and the Persian frontier.—Traveller's notes continued from last month: deals with the routes from Arvaz to Khiveabad.

OCTOBER.

Rôle of the Russian fleet in the war of 1877-78.—Continued from last month's article.

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A. B. LINDSAY, *Captain.*

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3. Comparative study of systems of military administration of three great Powers as compared with our own in India.
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By order of the Council,

C. W. G. RICHARDSON, *Captain,*

Secretary, United Service Institution of India,

Simla.

United Service Institution of India.

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2	<i>Qui mari potitur, cum rerum potiri.</i>
3	He that commands the sea is at great liberty and may take as much and as little of the war as he will.
4	<i>Ventis Secundis.</i>
5	<i>Altius ibunt qui ad summa nitantur.</i>
6	<i>Constanter et Prudenter.</i>
7	<i>Quare Fremuerunt Gentes.</i>
8	Hazard Zet Fordward.
9	<i>Si vis pacem para bellum.</i>
10	The desire of the Nations.
11	Ever ready for anything.
12	<i>In utrumque paratus.</i>

- (3) A cable which joins neutral territory to that of one of the belligerents must not be injured by this latter, nor can be put a stop to communication, except in special circumstances. Occupied territory is in these respects to be considered as the territory of the occupier. The other belligerent may only cut a cable within the zone of an effective blockade.
- (4) Cables connecting two belligerents may be cut by either.
- (5) Compensation is payable for cables used under the Roman law *jus angariae*. This law does not hold good on belligerent soil, where cables may be used without compensation being paid.

It will be noticed that these so-called laws are formulated with a view to the advantage of a nation which, like the German, possesses but very few cables.

General Von Boguslawski lately made a statement to the effect that the Boers made little use of long-range infantry fire. In number 135 Lieutenant Gentz of the German Reserve, who fought against us as one of the three German contingents, combats this assertion and gives instances at Vaalkranz, Vet River, Sand River and at Boshad within his own personal knowledge where such long-range fire was used by the Boers.

Numbers 2 to 5 contain a good account of the Japanese Empire and of its armed strength.

The 1st supplement for 1904 contains an account by Von Tietze-mann of the battle of Omdurman.

In the 2nd supplement Major Von Tettau concludes an account of a visit to the Russian army with the sentiment "Shoulder to shoulder with our Russian neighbours". He spent two months with the Russian corps in the military district of Kiev, which for fourteen years has been commanded by General Dragomiroff. His opinions on the Russian army are interesting. He considers the senior officers to be excellent, sound soldiers who discharge their duties well and faithfully, but who in his opinion were wanting in initiative and in decision of character. The regimental officers of the 125th Kursk Infantry Regiment made a better impression, performing their duties with intelligence and interest. In the cavalry regiment also, in which he was a guest, he found a "friendly and solid tone" existing. Every morning the Commandant shook hands with all his officers, the Divisional Commander with all his regimental commandants! The bearing of the officers towards each other was unconstrained without being familiar. Major Von Tettau, however, thinks it necessary to say that though the Russian officers are certainly not fastidious in their choice of drinks, he never saw one drunk however late they might sit up over their liquor!

Of the Russian private the Major thinks very highly, considering him to be soldier-material better than that possessed by any other army. His lack of education is said to be balanced by an innate natural quickness. In addition he is willing, persevering, unassuming and contented even while undergoing the greatest hardships. An instance is

given of a march of 38 miles in 24 hours having been made during the manœuvres without any men having fallen out.

There appears to be a great want of long-service non-commissioned officers, as the Major remarks that it was rare to find a man who had extended his service. He thinks, however, that owing to the comparatively long service of the Russian army, compared to other continental armies and to the natural submissiveness of the Russian soldier, that this want is of small importance.

After seeing four Cavalry Divisions, Major Von Tettau is of opinion that the Russian cavalry is very efficient. The Russian troop-horse though small, the largest being barely 15½ hands in height, is not inferior to the German. The horses were well under control, strong and in good condition.

The Cossacks have lost much of their former excellence in horsemanship. The Cossack horse, innocent of the aids of the riding school, ridden without spurs on a snaffle bit, holding his nose high in the air and keeping no regular cadence in his paces, did not appeal to the Major's regular eye. He admits, however, that the Cossack, man and horse on account of their endurance, would be very useful for reconnoitring duties.

In the past, consequent on the system by which the Russian artillery received only such horses as were left over after the remounting of the cavalry had been completed, this arm was decidedly under-horsed. In future the remounting of the artillery is to be considered as of equal importance to that of the cavalry, and is to be undertaken by a similar agency. An improvement may therefore be looked for in the Russian artillery, whose rearmament moreover with a new and powerful quick-firing gun is almost completed.

The Russian infantry still apparently continues to be instructed in the supreme importance of the assault with the bayonet.

The 3rd Supplement contains a short historical sketch of Frederick the Great's generalship from Mollwitz to Leuthen. The author claims that the Great King, and not Napoleon, was the real originator of the modern theory of war, as exemplified in the principle of making the enemy's field army the objective, of seizing the initiative, and of concentrating all possible forces for battle. Napoleon himself has said, "Frederic the Great stands in the first rank of Generals. * * * He succeeded in doing what I never ventured to attempt."

Militär-Literatur-Zeitung (November and December 1903, and January 1904).

In the first of these numbers General Von Rohne, who is the exponent of shrapnell shell fire, criticizes very unfavourably the ideas regarding the substitution of percussion shell from small-calibre quick-firing guns for ordinary field artillery put forward in General Von Reichenau's book "*Neue Studien über die Entwicklung der Feldartillerie*" (2 marks).

In the last number Von Lossberg's "*Mit Santa Barbara in Süd-Afrika*" (2 marks) is well reviewed. Von Lossberg commanded a Boer battery in the late war.

H. W. R. SENIOR, *Captain.*

RUSSIAN PAPERS.

Voyennii Sbornik.—In the August to December 1903 numbers, the following are perhaps the most interesting articles:—

AUGUST 1903.

Prince Eugene Napoleon.—A continuation from the article in the July number, with a plan of the battle of *Raab* and two engravings, concludes the series on the subject.

Rôle of the Russian fleet in the war of 1877-78.—Continued from the July number. Part IV deals with the crossing of the Danube and the organisation of a fleet of steamers and rowing boats for co-operation with the army and to defend it from attacks of the Turkish fleet. Describes the torpedoes used and system of working them, etc. Part V discusses the strategical importance of the Danube, and describes the nature of the struggle for possession of the river, gives the position of the Turkish fleet in the commencement of June 1877, and details of attacks made on it by the Russians. Part VI continues the description of various skirmishes with the enemy's ships.

Historical sketch of the services of the Siberian Cossacks.—Commencing with their gradual birth in the last quarter of the 18th century from Western Cossack wanderers and settlers, this article is devoted to an account of their development into a separate *Voisko*, which received the name of Siberian; gives details of their history and the campaigns in which they have taken part up to the present date.

Mounted infantry and the lessons to be learnt from the Anglo-Boer war.—Commences with a short sketch of the origin of mounted infantry in the English army and its development and services during the war in South Africa. The author in summing up gives his opinion that mounted infantry could never in any European campaign be employed under such favourable circumstances or be in such demand as under the exceptional conditions guiding the conduct of operations in South Africa. For the Russian army, he considers even the maintaining of mounted infantry cadres in peace time unnecessary, owing to the ordinary Russian peasant recruit being so accustomed to horses that in the event of mounted infantry being required, it would be only necessary to supply the infantry with horses.

Assuming that the *raison d'être* of mounted infantry is "to increase and insure the greater independence of cavalry", the writer discusses how this can best be attained, while considering the principle followed by Peter the Great and Napoleon to this end, and in conclusion states that "this independence can best be attained, not by the formation of mounted infantry corps, but by the more extensive introduction of the infantry element into the cavalry arm."

The war training of the Sotnia.—Continued from last month; enumerates the qualifications required of it, before it can be considered fit for war, and the rôle it would be expected to play in the field.

Horse breeding in herds.—This article is devoted to the necessity of improving the stamp of Cossack horses, with the object of making them better able to hold their own with cavalry of the line. Describes Cossack horse breeding, the manner in which the Imperial Government are attempting to improve the breed, and generally describes the nature of the supply of remounts to the army.

Artillery in battle and manœuvres.—Chiefly a comparison showing up the unpractical manner in which manœuvres are usually conducted.

Along the Caspian Sea and the Persian frontier.—A continuation of traveller's notes from last month, deals with the routes from Hasan Kuli to the Arvaz Post.

The English army after the South African war.—A short account of changes brought in after the war in South Africa, dealing briefly with the supply of remounts, changes in the mobilisation system, training of troops, discipline, finance, etc.

SEPTEMBER.

Rôle of the Russian fleet in the war of 1877-78.—Continued from the previous article in the August number. Part VII describes the operations at Salin and the fights of 27th and 28th September 1877. Part VIII is devoted to the nature of the struggle on the Black Sea, and the strategical importance of these waters from their central position between the belligerents. Explains the steps taken for the defence of the Northern littoral by the Russians.

Siege of Viborg in 1710.—An account of the siege with an engraving and two sketches.

The war in the Caucasus.—This is an account of the defence of the Messeldeger Fort in the year 1853 by one of the defenders.

Is our system of musketry training up to date?—A very interesting article and full of details. Describing the necessity for instruction and drill, it takes certain points such as the manner of holding the rifle, etc., and compares the instructions on this point given in the Russian French, German, Austrian, Italian and English Musketry Regulations.

It is in fact a comparison between the systems of musketry training in the different armies.

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United Service Institution of India.

Prize Essay Gold Medallists.

1872.....ROBERTS, Lieut.-Col. F. S., V.C., C.B., R.A.

1873.....COLQUHOUN, Capt. J. A. S., R.A.

1874.....COLQUHOUN, Capt. J. A. S., R.A.

1879.....ST. JOHN, Maj. O. B. C., R.E.

1880.....BARROW, Lieut. E. G., 7th Bengal Infantry.

1882.....MASON, Lieut. A. H., R.E.

1883.....COLLEN, Maj. E. H. H., S.C.

1884.....BARROW, Capt. E. G., 7th Bengal Infantry.

1887.....YATE, Lieut. A. C., 27th Baluch Infantry.

1888.....MAUDE, Capt. F. N., R.E.

YOUNG, Maj. G. F., 24th P. I. (specially awarded a silver medal).

1889.....DUFF, Capt. B., 9th Bengal Infantry.

1890.....MAGUIRE, Capt. C. M., 2nd Cav., Hyderabad Contingent.

1891.....CARDEW, Lieut. F. G., 10th Bengal Lancers.

1893.....BULLOCK, Maj. G. M., Devonshire Regt.

1894.....CARTER, Capt. F. C., Northumberland Fusiliers.

1895.....NEVILLE, Lieut.-Col. J. P. C., 14th Bengal Lancers.

1896.....BINGLEY, Capt. A. H., 7th Bengal Infantry.

1897.....NAPIER, Capt. G. S. F., Oxfordshire L. I.

1898.....MULLALY, Maj. H., R.E.

CLAY, Capt. C. H., 43rd Gurkha Rifles (specially awarded a silver medal).

1899.....NEVILLE, Col. J. P. C., S.C.

1900.....THUILLIER, Capt. H. F., R.E.

LUBBOCK, Capt. G., R.E. (specially awarded a silver medal).

1901.....RANKEN, Lieut.-Col. G. P., 46th Punjab Infantry.

1902.....TURNER, Capt. H. H. F., 2nd Bengal Lancers.

1903.....HAMILTON, Maj. W. G., D.S.O., Norfolk Regt.

BOND, Capt. R. F. G., R.E. (specially awarded a silver medal)

MacGregor Memorial Silver Medallists.

- 1889.....BELL, Col. M. S., V.C., R.E. (specially awarded a gold medal).
- 1890YOUNGHUSBAND, Capt. F. E., K. Dn. Gds.
- 1891.....SAWYER, Maj. H. A., 45th Sikhs.
 RAMZAN KHAN, Havildar, 3rd Sikhs.
- 1892.....VAUGHAN, Capt. H. B., 7th Bengal Infantry.
 JAGGAT SINGH, Havildar, 19th P. I.
- 1893BOWER, Capt. H., 17th Bengal Cavalry (specially awarded
 a gold medal).
 FAZALDAD KHAN, Dafadar, 17th B. C.
- 1894.....O'SULLIVAN, Maj. G. H. W., R.E.
 MULL SINGH, Sowar, 6th B. C.
- 1895.....DAVIES, Capt. H. R., Oxfordshire L. I.
 GUNGA DYAL SINGH, Havildar, 2nd Rajputs.
- 1896.....COCKERILL, Lieut. G. K., 28th Punjab Infantry.
 GHULAM NABI, Private, Q. O. Corps of Guides.
- 1897.....SWAYNE, Capt. E. J. E., 16th Rajput Infantry.
 SHAHZAD MIR, Dafadar, 11th B. L.
- 1898.....WALKER, Capt. H. B., Duke of Cornwall's L. I.
 ADAM KHAN, Havildar, Guides Infantry.
- 1899.....DOUGLAS, Capt. J. A., 2nd B. L.
 MIHR DIN, Naik, Bengal S. and M.
- 1900.....WINGATE, Capt. A. W. S., 14th B. L.
 GURDIT SINGH, Havildar, 45th Sikhs.
- 1901.....BURTON, Major E. B., 17th B. L.
 SUNDER SINGH, Colr. Havildar, 31st Burma Infantry.
- 1902.....RAY, CAPTAIN M., R.E., 7th Rajput Infantry.
 TILBIR BHANDARI, HAVILDAR, 9th Gurkha Rifles.
- 1903.....MANIFOLD, Lieut.-Col. C. C., I.M.S.
 GHULAM HUSSAIN, Dafadar, Guides Infantry.

The Journal

OF THE

United Service Institution of India.

VOL. XXXIII,

JULY 1904.

No. 156.

THE INFLUENCE AND APPLICATION OF SEA POWER ON EXPEDITIONS BASED ON INDIA.

BY MAJOR G. F. MACMUNN, D.S.O., R.F.A.

Motto:—"Quare fremuerunt gentes."

*"The storm-beaten ships on which the Grand Army never looked
stood between it and the dominion of the world."*

In considering the subject of this essay, almost the first thought that presents itself is that in the question of the influence of Sea Power on expeditions based on India, the whole principle of England's naval supremacy, and her command of the sea is involved. It is impossible to discuss how expeditions from India, be they over land through the passes, or over sea through the Gulf and the Indian Ocean, or through the Archipelago to the Far East, are affected by Sea Power without understanding how the Empire rests on its maintenance, or how India and England stand towards each other.

Captain Mahan's famous saying, above, is at once the epitaph of British policy in the past, and the prophecy of its future. Thanks to his writings, and the efforts of those who have followed in his footsteps, the axioms of Sea Power are now widely understood by Englishmen. The necessity for its maintenance is so universally recognized in these days that to discuss it, save as a prelude to argument is absurd.

Power on the Sea consists of two essentials, fighting power and
Meaning of Sea Power. and carrying capacity, and in this latter must be included all the facilities requisite for embarking troops, and loading or unloading freights.

It is in the combination of these two constituents that lies England's strategic power. Add to the command of the high seas the capacity to transport troops to any spot in the wide world we please,

and the full meaning of Sea Power is apparent. The despatch of 10,000 men from Europe to the Far East is a difficult matter, but for England, it is only necessary to cable to India, where irrespective of internal demands that number of men, and the ships to move them, wait only the signal to start. The power to move distant men by cable, enhances the value of a force so available, out of all proportion to its actual numbers. The capacity of India with regard to oversea expeditions will be discussed later on.

Now the broad principle of England's policy in time of war is to gain complete supremacy at sea, and then search how she may best force her adversary to sue for peace, employing her Sea Power in its broadest sense to gain this end. It is the help that India, from her geographical position, can give to such a policy that seems to be the subject of this essay.

To examine therefore the question of "The influence and application of Sea Power on expeditions based on India," it is proposed to discuss it under the following headings, touching briefly on the main points of Imperial strategy, and such naval subjects as are necessary for a broad view of the subject.

PART I. *The Influence of Sea Power on India.*

- (1) Dual operations.
- (2) Oversea ventures from India in the past.
- (3) The economic position of India in war time.
- (4) India's strategic position.
- (5) Expeditions from India.
- (6) Summary of foregoing.

PART II. *The Application of Sea Power to India.*

- (7) The communications of India with Europe.
- (8) Coal strategy.
- (9) The Indian Ocean.
- (10) Conclusions affecting the route to India.
- (11) The Isthmian Canal.
- (12) The application of Sea Power in the East.
- (13) Coaling stations in the Far East.
- (14) Resumé.

PART I.—THE INFLUENCE OF SEA POWER ON EXPEDITIONS FROM INDIA.

(1) DUAL OPERATION.

The study of European History, from the French Revolution to the present day, affords a series of illustrations of the extraordinary strategic value that a small military force has when it can be transported by sea and landed at will, at a point where its action will be most effective. It was not the size of the British force in the Iberian Peninsula that formed the

The Spanish Ulcer.

"Spanish Ulcer." It was the fact that owing to our absolute command of the sea, and the configuration of the seaboard of Western Europe, England could plant, remove, and maintain, with a base shifting at need, an army at a point furthest removed from Napoleon's other theatres of war, that made the genius of Wellington and the daring of his army possible. It was the "storm tossed ships" that started the ulcer, ever feeding it with fresh germs, and prevented its healing, by making the Channel and the Bay as English as the Humber and the Wash.

It was not the size of the Allied Expedition to the Crimea that brought Russia to terms, and to a humiliating surrender. It was the point at which Sea Power, fighting force and carrying capacity, maintaining a small army, enabled the blister to be applied. The distance between Great Russia and the Chersonese then unspanned by railways and badly served with roads, cut off the seat of war from the vast armies of the Tzar, which had to march over countless miles of snow-swept or sun-dried steppes, to lose nine-tenths of their numbers on the road. It was her old soldiers, General January and General February, that played her false, added to the strategy that affixed the blister, at the point where remedies could not be applied.

Similarly it was the Sea Power of England that enabled her to crush the French in the Mediterranean, to isolate the French in Egypt, who were cut off from France, and then to land in 1801 the British force that forced a superior army of Napoleon's veterans to complete surrender.

It was the power to place our expeditions where we pleased that has always served us in such good stead, and neither the strategical error that prompted the wretched expedition to Walcheren, instead of concentrating our strength in Spain, nor the follies of the abortive raids on the northern French coast in the early eighteenth century, detract from the value of such combined expeditions when wisely conceived.

By so much as does this amphibious power of England enhance her might, so much more does India, a vast far advanced base, enhance the strategic range of her dual operations.

A glance at the oversea enterprises from India in the past will show how strong has been her position, and how resolutely the dual resources in the Far East have been employed to maintain the command of Eastern waters, and to exterminate all who could dispute it.

The study of the history of the last hundred years further establishes that permanent command of the sea is essential to the success of oversea expeditions. The position of the French in Egypt after the battle of the Nile, and of Ibrahim Pasha in the Peloponese after Navarino, are both clinching demonstrations of this. Had the British fleet been driven from the Bay, there would have been no escape for Sir John Moore's army after Corunna.

One point seems to stand out from all these historical examples, and that is that Sea Power does not, at any rate for England, mean

merely naval fighting force and carrying capacity, but the power to employ an army and a navy in combined operations, and that this broad meaning should be always understood when we use the expression. That this must be so is borne out by the reflection that no mere strength in ships would have brought Napoleon to Elba, without the "ulcer" of the army in Spain.

(2) OVERSEA VENTURES FROM INDIA IN THE PAST.

In the days of the Great Shadow, when free England financed and subsidised all Europe to combat Napoleon, India boldly despatched oversea expeditions to seize every point whence the trade to the East could be threatened.

In 1795, when France dominated Holland, an expedition from England occupied the Dutch possessions at the Cape, and an expedition from India took the Dutch territory of Ceylon, holding the latter for good and all, and restoring the former to Holland at the Peace of Amiens, secured it in perpetuity in 1805, in pursuit of the determination that nothing should jeopardise the red road to the East.

In 1802, India recognizing her strategic interest in Egypt, sent, at the instance of the great Marquis, a force to assist in expelling the French.

In 1810, a further expedition from India captured Bourbon and the Mauritius, the bases whence French privateers preyed on the India trade, and whence French Governors intrigued with, and assisted, the native powers, an interesting prototype for future enterprise.

In 1802, and again in 1808, we occupied the Portuguese colony Macao, close to Canton, because France had dominated Portugal and might occupy her ports. In the earlier instance the Indian Government effected this on its own initiative, recognizing the necessity of denying bases to the enemy. Such forethought, however, was severely censured by the Home Government.

In 1811, the same policy, the preservation of our military and commercial routes to India and the Far East, saw us take Java from the French, who held it for the Dutch.

In the wars with France, prior to the French Revolution, the French navy in Indian waters was much handicapped by the distance of its only refitting base, the Mauritius, from the point where its action was needed, while British vessels had many points to which they could repair to refit. The latter with the Hoogly, Trincomalee and Bombay at their disposal had immense advantages and could not only keep the sea, but constantly bring troops from the other Presidencies to reinforce points threatened by the French ashore. In 1782, Admiral Suffren, the capable French naval commander in the East Indies, succeeded in capturing Trincomalee, thus forcing the

British vessels to refit at Bombay, Madras or Calcutta, and his possession of this naval base at once caused us to collect a force to expel him, which we finally did.

Now all these ventures took place to protect our Eastern communications, and were possible because we had sufficient naval strength in Indian waters to safely convoy our transports and maintain communications with their base. The possibility and prosperity of our Indian rule in the past is therefore shewn at every turn to be wrapped up in the two great constituents of Sea Power, carrying capacity and fighting force.

(3) THE ECONOMIC POSITION OF INDIA IN WAR TIME.

Close on a quarter of a century ago when Indian defence and its varied problems were deeply and acrimoniously discussed, when many schools of thought existed, and various points were in turn spoken of as the "Key of India," it was Lord Beaconsfield who brought men back from the by-paths by saying. "The Key of India is London." By which in the true spirit of strategy, he meant that so long as the Empire of which London is the hub was in no danger, so long India stood safe, and the road to it stood open.

The Roman semi-military occupation of Britain, for nigh on 400 years, bears a striking analogy to our own rule in India, and it was not till the hub of the Roman Empire was threatened and involved that Britain, deprived of its best legions, gradually fell a prey to barbarian inroads, local risings, and oversea invasions. Curiously enough it was the acuteness of the food supply question that largely contributed to the fall of Rome.

From the point of view of possible war, India at first sight seems to differ economically from England in every way. England now barely feeds a ninth part of her own population, while one third of that population live from hand to mouth, ever dependent on wages earned by converting raw imports to manufactured exports. No State stores of food in the country can provide that third with wages, if the inflow of raw material and the export of manufactured material be checked for more than a few days. The absolute and almost unbroken command of the sea is therefore a condition of national existence. Isolation of a few weeks even, means consternation and misery untold.

India on the other hand is not economically dependent on ocean-borne trade. No corn and beeves are borne on the sea to feed her millions. Isolation by sea does not bring immediately a starving population surging to the doors of Government. Cotton mills may close, corn merchants may fail, tea plantations close, but no immediate catastrophe threatens a country that feeds its own population, which is almost entirely agricultural.

It must be remembered, however, that the India as we know it to-day, the peaceful homogeneous whole, is entirely a product of the British occupation, a rule ringed with bayonets, lest Sikh and Pathan,

Mahratta and Rajput, Rohilla and Mugul, and every masterless man in the country, once more struggle for power and the spoils of war. The British power in India is absolutely dependent on a regular and undiminished supply of the moral petrol from England. The constant flow through the great canal of fresh drafts for all the services, the outflow of the jaded, the inflow of the fit, and of all the supplies and all the stores requisite to our rule, can only bear temporary interruption. In ordinary times of peace the flow and the wastage is considerable. The smallest frontier war increases, be it never so small, the demands on England.

In the days of the Honourable Company, when small-arms, explosives, and cannon were easy to make, and when railroads existed not, India was far more self-supporting from the British point

of view than now. The Company manufactured its own military stores, and evolved armies from its subject races to keep pace with its expansion. No law of proportion existed between the European and native forces, and India was deemed less dependent on Europe than now. The safety of the Indian trade rested, as it ever rests, on the command of the sea, and when foreigners were strong on sea, the trade suffered, though every Indiaman could fight for her own hand. India, prior to 1857, was regarded almost as a self-sup-

Mushroom Armies. porting base with regard to military supplies, even though the most powerful native confederacies held arrogant sway in the greater half of the land; whenever more armies were required the *Lat Sahib* ordered and the legions grew, and it was not realised how the British bayonet alone stood behind the British *Raj*.

The Mutiny nearly brought down our card house about our ears, and from that date the unlimited raising of troops from local sources ceased. The alloy of the Indian Army was to have a fixed proportion of East to West in its constitution, and the East was no longer to be unduly increased as a cheap support for Imperial burdens.

This at once, to change the metaphor, made India a reservoir, rather than the self-supporting supply it had been erroneously deemed—a reservoir it is true from which troops could be poured in considerable quantities, but only on condition of prompt refilment. The realization of the true position of India has naturally shewn her military condition to be far less independent. More dependent on European support because of the limitations of her military resources, still more so because of the "Great Fear" behind; that legacy of the 1857.

With the introduction of modern guns, modern rifles, and explosives, added to that of railways, India's manufacturing capabilities made her even more dependent on Europe, and though of late years the policy has been to create as many arsenals and factories as possible, still, engines, many rails, bridge girders, rifles and cannon, all equally important military stores, must come from Europe or America.

The normal peace demands on India then are most extensive, and while the smallest frontier expedition increases to some extent the military drafts, such larger wars as the Mutiny, the Afghan War of 1878-80, or the Frontier campaign of 1897-98, create a very large and imperative demand on Europe. In a recent speech in the House of Commons the Premier has openly said that in the event of war with Russia it would be necessary to despatch the equivalent of two Army Corps to India. Now an Army Corps at home war strength, such as went to South Africa, requires 130 large steam transports.

The foregoing considerations show, therefore, clearly enough, how much India depends on her free communication with Europe, and how immense in every way must be the influence of Sea-Power, that combination of carrying capacity with fighting force, on expeditions based on India.

It has been shewn it is true that any temporary interruption of the command of the sea does not bring consternation and disaster in its train to her, but it is evident that any prolonged solation must at best have the most crippling effect on her offensive power.

To see how Indian expeditions are influenced in more detail, the military position of India must next be to some extent reviewed.

(4). INDIA'S STRATEGIC POSITION.

The Military position of India presents two different problems, for India a Continental country. we have to consider her on the one hand, as a continent with frontiers that march with powerful neighbours and with possibilities of great internal trouble, and on the other hand, as an advanced base from which certain forces may be despatched, of strategical importance out of all proportion to their actual numbers. It is necessary to consider the former point of view, to gauge the possibilities of the latter.

We have seen that a century ago when Great Britain was the paramount but not the only power in India, she cheerfully undertook over-sea expeditions against powers we were at war with, for the general advancement of the cause, and the special protection of the Eastern routes. At this period she had powerful internal enemies to fear. No sooner however had the British rule been consolidated over the whole of the Indian Peninsula, and India therefore made a far securer base for expeditions than the persistent policy bequeathed by Peter the Great brought Russian advance looming on the horizon, while the Mutiny showed the volcanic possibilities that lay beneath even an all red India.

The continual Russian advance has now put India almost in the position of a continental power, unable to make effective over-sea expeditions, till she is certain of her neighbours' intentions. Exactly as France can never think of large over-sea operations till her relations with Germany are satisfactory, so can India never send armies across the sea till Russia's attitude be guaranteed. This means that for all practical purposes the mass of the Indian army is tied to India, except in circumstances when Russia may be our firm ally.

One point therefore that stands out from the above, and is a point that is not always kept in sight, is that the army in India exists for the protection and retention of India.

India is prepared to use force to help protect her communications, but save on special occasions, when all is quiet within, the army of India cannot send forces to assist elsewhere in the Empire. The free despatch of troops to China, to South Africa, and to East Africa was only possible because all was quiet in India.

It is not within the scope of this essay to discuss the military forces of India and their destination, but it may be accepted that 25,000 men, of whom the majority would be native soldiers, would be the very maximum that we could ever send out of India, so long as Russia's action was uncertain, *unless* we were in the position to pour troops into India from Europe as fast as we take them out. At the same time it is very evident that a force of from 5,000 men upwards, always available in Eastern seas, is a factor that no one could neglect.

Without discussing the varied possibilities before us in the East, sufficient reference to our position is necessary to see how Sea Power must influence oversea expeditions from India.

Our possible opponents are—

- (1) *Russia*, who is rapidly gaining in the Far East a strategic position similar to our own, inferior because not so central, superior because her hinter-land seems destined to be a powerful and fruitful Russian Province, from Moscow to Port Arthur.
- (2) *Japan*, which is an island and maritime power, with many analogies to Britain; and whose strategic position is advantageous.
- (3) *The United States*, who in the Philippines will have in generations to come a powerful advanced base, and on whom the Isthmian canal is to confer great advantages.
- (4) *Germany*, whose Eastern settlements are hopelessly isolated.
- (5) *France*, whose Colonies and Possessions are more dependent than India on connection with Europe, and whose offensive military strength in the East is trivial.
- (6) *China*, the great unknown, against whom large dual expeditions have been necessary in the past, and may be again at any time.
- (7) Various possible campaigns where, as in the past, England would want help from India, such as Somaliland, Abyssinia and the Soudan.

Dual operations against Japan are not within the sphere of practical politics, and war with Russia must tie up most of our troops in India, though the offensive defence of India may necessitate communications *via* the Gulf. War with the United States entails so many consequences, and has so many aspects, that India's possible share has never been thought out. The support of Canada, and in years to come the control of the Isthmian Canal, would be objects of a greater strategy.

Against France and Germany, all that is probable is the reduction of their power to damage Eastern trade, the possession of their Colonies must come as a result of success, or at any rate be an easy matter so soon as England's command of the sea became absolute.

Concentration is the first axiom of strategy, and only forces, naval India's Amphibious and military, that cannot be brought into the main theatre of war, could be diverted into colonial enterprises. It is now an accepted axiom, so far as Great Britain is concerned, that in fighting a European Power, fed by rail from an allied or neutral neighbour, power on sea alone cannot bring a war to a successful determination. Sufficient dual enterprises against an adversary's colonial possessions can alone affect her purse or her pride sufficiently to clinch matters.

Such considerations give a general idea of how India's position helps the Empire, remembering always that Russia must be safe before many troops leave, or else that England can pour troops in within a week or so of others leaving. More is hardly necessary to realize how great is the influence of the force that keeps open the road from home.

For the despatch of oversea expeditions generally, a local command of the sea may often be all that is necessary, *vis.*, command in the waters to be traversed. In the event of a war with France for instance, a command of the sea in Eastern waters would suffice for the mere safety of an expedition from India, against the French Indies. Similarly it is only the Russian Squadron in the Far East that affects the question of a Japanese landing in Korea.

In view of the foregoing it therefore seems clear that the employment of our full sea power in the Far East, *vis.*, the power to send and protect combined expeditions, will be aimed against the coaling stations in the East that support hostile cruisers. The dispersions of force and the upkeep of garrisons, that such enterprises entail, must always limit them to the capture of vital points, while final success puts others at our mercy.

A point is here worth noticing with regard to the accessories to sea power, *vis.*, that in all India there are very few docks and wharves from which troops can be embarked. Between Calcutta and Bombay a distance of 2,000 miles, there is not one. Even with the immense resources of England it takes days to embark an Army Corps. To despatch even a division from India is a lengthy matter, when secrecy and surprise are of any value.

(5) THE NATURE OF EXPEDITIONS BASED ON INDIA.

Before considering how this Sea Power is to be applied in the interests of expeditions from India, a more detailed examination of the natures of expeditions based on India is desirable.

Such expeditions may be divided into three categories.

A. Those based on India by land.

B. Those based on India by sea.

C. Those despatched from India, but based elsewhere.

Category A would include any overland enterprise, from a punitive raid to a war with Russia and a campaign on the Helmund or through the Dasht-i-Lut.

Category B comprises two sorts of Expeditions,—

(a) Those against Native States.

(b) Those against European Powers or Japan.

In (a) would come our Burmese, Persian, and China Wars, while in (b) we have had nothing since the capture of Java and the Mauritius.

Category C would include such expeditions as the force sent to Africa in 1899, and to some extent those sent to Egypt, the Soudan or Abyssinia, inasmuch as they were not entirely supplied from India.

From what has already been put forward, it follows that *Category A* is affected by Sea Power, so far as the throwing of reinforcements and the replenishment of expended *personnel* and *matériel* is concerned, which vary from drafts to the safe despatch of Army Corps.

Expeditions in *Category B* are further dependent on complete Oversea Expeditions. naval supremacy in Indian and Eastern waters when war with a Naval Power is concerned.

When however the expedition is against a non-naval state, such as a native state or China, the carrying capacity is the only portion of Sea Power that is in demand.

Category C again is dependent on sufficient naval supremacy and carrying capacity for the safe despatch of the expedition, which has of course to be supplied by sea in its new destination.

(6) SUMMARY OF PART I.

Summing up the conclusion which it has been the endeavour to elicit in the previous pages, it would seem that so far as Expeditions based on India are concerned the influence of Sea Power is much as follows :—

1. Owing to the geographical position of India and the naval supremacy of England, the former is an advanced base of extreme strategical value whence oversea expeditions small in number are immense in their effect.

2. That from the fact of Russia's vicinity, and possible hostility, heavy reinforcements may be required at any time, and that Sea Power must keep the road open, and that for this same reason expeditions that can leave India can only be numerically small till Russia's course of action be certain.

3. That owing to the nature of our position in India, the volcanic possibilities below the surface, and the drain that any expedition causes in a greater or less degree, free communication in time of peace and war is an essential, and without Sea Power this would be impossible.

4. That oversea expeditions cannot safely leave India until full command in the waters to be crossed has been obtained.

PART II.—THE APPLICATION OF SEA POWER TO INDIA.

From the foregoing pages, it is clear that in the application of Sea Power for the benefit of expeditions based on India, the main objects to be aimed at are :—

- (1) The safety of the communications of India with Europe.
- (2) Sufficient command of the local seas, to despatch and safely base on India, any required expedition.

It should also be mentioned that even when an expedition proceeds overland from India, warlike stores, *personnel* and animals may come to India not only from Europe, but from Australia, Canada, and the Far East. Once again therefore it is evident how bound up with the general question of British naval supremacy is the military situation in India.

(7) THE COMMUNICATIONS OF INDIA WITH EUROPE.

This question alone involves one of the biggest Imperial controversies of the day, *vis.*,—the merits and possibilities of the Cape or the Canal routes.

The Canal.

A few years ago it was generally believed that in the event of war with a maritime power, we should have to abandon the Canal route ; but further study of the question has caused expert opinion to think that it can be kept open. The naval strategic front of England is said to be from the Channel round to the Hellespont, watching the naval ports of Europe including Bizerta ; but just as a block-house line is the safest route for unescorted convoys, so would the Mediterranean route, with the naval force concentrated along it, be the safest for our eastern commerce and troopers. It is a question which war alone can settle, but the following points are worth bearing in mind :—

(a) Ditchers and tramps are almost entirely built for the England to Bombay trip *via* the Canal and are neither equal to the strain of the voyage and weather round the Cape, nor have they coal capacity to enable them to go from coal point to coal point.

(b) The coal supply and coaling accommodation at the Cape is entirely inadequate to the strain of supplying the Eastern trade, and ships might be kept one or two months there *before* they could coal, while colliers proceeding there from England would consume part of their cargo getting there. During the South African War, the coaling of all the war shipping was attended with many delays.

(c) The sinking of a ship in the Canal to block Blocking the Canal. it is not nearly so feasible as it might seem.

Surely we should assume a strong enough line in the event of war to use our position in Egypt to insist on placing a guard on every foreign ship passing the Canal between Port Said and Suez.

(d) Even the sinking of a ship laden with bricks in the Canal would not be the catastrophe usually imagined. The depth of the Canal is about 30 feet, while freight ships draw 24 feet, so that it would be a question of raising a vessel 6 feet, no great task with the resources of the Canal Company, and towing her to the Canal mouth or lake opening.

Category A would include any overland enterprise, from a punitive raid to a war with Russia and a campaign on the Helms through the Dasht-i-Lut.

Category B comprises two sorts of Expeditions,—

(a) Those against Native States.

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Expeditions in *Category B* are further dependent on *Oversea Expeditions* naval supremacy in Indian and Eastern when war with a Naval Power is concerned. When however the expedition is against a non-naval state, native state or China, the carrying capacity is the only *Sea Power* that is in demand.

Category C again is dependent on sufficient naval supercarrying capacity for the safe despatch of the expedition, of course to be supplied by sea in its new destination.

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3. That owing to the nature of our position in India, the possibilities below the surface, and the drain that any causes in a greater or less degree, free communication of peace and war is an essential, and without *Sea Power* this impossible.

4. That overseas expeditions cannot safely leave India command in the waters to be crossed has been obtained.

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THE SECRET IS IN THE MIND OF THE MAN WHO KNOWS THE SECRET

THE DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF STAFF
WASHINGTON, D. C. 20315

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

2. Next, it is important to gather relevant information and data. This can be done through research, consultation with experts, or by analyzing existing data sets.

3. Once the information is gathered, the next step is to analyze it. This involves identifying patterns, trends, and relationships that can help in understanding the problem.

4. After analysis, the next step is to develop a solution or plan. This involves identifying the most effective approach to solve the problem and outlining the steps to be taken.

5. Finally, the solution is implemented and the results are evaluated. This involves monitoring the progress of the implementation and assessing the effectiveness of the solution.

the 1990s, the number of people in the United States who are 65 years of age or older is projected to increase from 20 million to 35 million, and the number of people 75 years of age or older is projected to increase from 10 million to 15 million (U.S. Census Bureau, 1996). The number of people 85 years of age or older is projected to increase from 2 million to 4 million (U.S. Census Bureau, 1996). The number of people 90 years of age or older is projected to increase from 500,000 to 1 million (U.S. Census Bureau, 1996). The number of people 95 years of age or older is projected to increase from 100,000 to 200,000 (U.S. Census Bureau, 1996). The number of people 100 years of age or older is projected to increase from 10,000 to 20,000 (U.S. Census Bureau, 1996).

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It would therefore seem that the route *viâ* the Canal is as likely to be available as any other, and we may reckon on using it.

The following naval considerations have some bearing on this question of trade ships and troopers to the East *viâ* the Canal.

Naval Notes.

(h) One ship in every three that goes through the Canal is not English. A warship of a Power at war with England dare not sink a ship till she had ascertained that it did belong to us. By day the route would be sufficiently patrolled, unless we were beaten from the seas, and by night a Foreign cruiser would have to overhaul every passer by, and probably board her and examine papers, ere she dared effect seizure. Under such conditions it is not likely that many prizes would be made in each night, and for every vessel taken many would elude capture.

Convoys.

(g) Convoys on the contrary attract attention by their smoke, are easily located at day, can be followed, and are a fair mark for torpedo boats at night. On a route not entirely clear of hostile cruisers, but which our own cruisers patrol, ships that slip along as best they may, would probably have a better chance of escape, and a more satisfactory voyage, than if tied to a convoy, and the pace of their slowest consort.

These are points which add to the likeliness of the Canal route, and to the necessity of holding the Mediterranean as the road to India.

To pursue further the discussion of the alternative route to India is perhaps outside the scope of this essay and encroaches on ground which only Naval strategists are competent to cover, and we may confine ourselves to the question of how vessels passing the Cape and issuing from the Canal, may be safely passed on to India, but as Sea Power is largely a naval question, sea topics must be discussed as best a landsman may.

Bound up with the question of Sea Power in all waters, but especially in far distant seas is the matter of coal supply and coaling stations, or what is now termed "Coal Strategy," and an outline of the chief facts regarding them is essential before proceeding with the discussion in hand.

(8) COAL STRATEGY.

From Sail to Coal.

A century ago, war vessels, or any other craft could keep the seas, so long as their food and water supplies held out, and important repairs were not necessary. Even then almost any small port would afford supplies and material for refitment. Now, however, coal is a necessity, which has entirely altered the whole matter of naval strategy, and every vessel must stow enough of it to carry her from one coaling port to another. Hostile cruisers are dependent for their action on coal supply, blockading fleets must coal at sea, a difficult operation, or else always have a proportion of vessels away coaling.

When colliers accompany a fleet, they must often keep up with it, which means that they expend far more of their freight than when steaming quietly in the way of trade, over an equivalent distance,

while they must retain sufficient coal to take them back when empty. So that coaling by collier convoy does not give a very satisfactory, or far reaching, coal supply.

Economical speed. Every steamer has its economical rate of speed, and directly this has to be enhanced, the expenditure of coal is out of all proportion to the distance covered. Vessels chased by others that have more coal capacity, or a nearer coaling port, may be rendered quite impotent. A foreign cruiser making *viâ* the Cape for Diego Suarez might steam there quietly at her economical speed, but if forced for some days to travel faster, by British cruisers, who could themselves coal at Ascension, St. Helena or the Cape, she might never get to her destination. Such "riding off" from coal supplies is to be a prominent feature of modern minor naval strategy.

For fleets and cruiser to have freedom of action there must be an abundance of coaling stations available. Coaling stations are of two kinds, defended ones, varying from naval ports and fortresses to defended coal heaps, and commercial ones. In time of war, a power that has a naval supremacy can establish on any suitable shore a temporary coal heap, and the most economical form of this is a row of anchored colliers, if the ships can be spared.

Malta is a fortress coaling station, Aden is more a fortified coal heap; Port Said and Saint Vincent in the Cape Verde Islands are types of commercial coaling stations.

Now all these coaling stations can only store a certain amount of coal, and are fed almost daily by colliers from Europe, chiefly England, while Welsh coal even for the East and the Far East comes through the Canal.

The following coaling facts are worth noting here :—

(a) The speeds of all vessels are measured when burning hard Welsh coal, and that class of coal is found in all the wide world in England alone. A vessel that does not burn Welsh coal loses 25 per cent. of her speed. Thus a twenty knot foreign cruiser becomes a fifteen knot vessel when Cardiff coal is denied her.

(b) All coal deteriorates by keeping; in a few weeks Welsh coal is no better than any other, therefore it is useless to accumulate stacks of it at coaling points. Whosoever would use it must be assured of a constant and steady supply. The amount that foreigners depend on us for coal is instanced by the fact that an average of six colliers a day leave Cardiff for France alone!

(c) The position of England therefore with regard to the rest of the world, so long as no one else can find Welsh coal, and no other fuel can be devised, is amazing, and is one that is not usually realized by the lay mind. The strategic value of the Cape, and the command in the Red Sea, are immense, viewed by the light of this fact.

(d) The steaming capacity, *vis.*, the coal carrying capacity, varies in different vessels, but the very latest type of cruiser, or commerce destroyer, specially built for independence in this respect, can only steam 12,000 knots at its most economical speed, *vis.*, 10 knots an hour, any enhancement

Effect of our monopoly of steam coal.

Coal capacity.

of this rate lessens considerably the total knots that can be covered. Most battleships and cruisers have far less capacity than this.

(e) Coaling stations, naval and commercial, in the east are almost entirely dependent on coal from Europe or America, and we possess the few ports that are not so. Table Bay and Durban can be supplied locally with indigenous though inferior coal, and the same applies to the Indian ports, to Labuan, though here our supply is not sufficiently protected, and to Australia, whose future as a strategic self-supporting base will be of vast importance. Russia can draw coal of sorts from Siberia for Port Arthur, while Japan has her own mines, but none of this coal is of much value to warships, especially cruisers. Other ports are entirely dependent on sea supply, and a glance at the map will show how isolated are most of the coaling stations, especially the non-British.

Colliers coming East from Europe must weather the Cape or pass through the Canal, and from Europe coal must come eastward, till American coal becomes the nearer. In the Far East coal mostly comes from America, but no American coal is equal to the hard Welsh coal, so that fuel for warships and the mail steamers still comes *via* the Canal.

The question of neutral coal.

A few words on the question of the coal of neutrals in war will not be out of place. It is held to be a distinct Neutral Coal. breach of neutrality for a neutral to supply a belligerent warship with coal save perhaps to steam on at her economical speed to the next port. It is always possible and indeed not improbable that a weak neutral might be coerced into supplying coal or have it forcibly taken, and be unable to take up the challenge. If such happened against us, it would be for us to clear out that neutral's coal and see she got no more. The strong maritime power can generally expect to profit in the end by such breaches of the law. In time of war might makes right since the earliest days of man. We should probably make it our business to protect, possibly garrison, the coal ports of a weak neutral, lest our adversary be tempted to raid them in despair of fuel.

(9) THE COMMAND OF THE INDIAN OCEAN.

The foregoing considerations throw our position in the Indian Ocean into clear relief. At Aden, Karachi, Colombo, Singapore, Mauritius, Durban and Table Bay we have defended harbours and coaling stations; at Trincomalee, Bombay and Simonstown we have naval bases as well. The African and Indian ports have the indigenous coal supply referred to. Now glance at the foreign coaling stations. In the vast expanse of sea, between Suez, Table Bay and Colombo, France alone has defended coaling stations at Obok and Diego Suarez, both hopelessly isolated so far as coal and naval resources are concerned. With these exceptions, the Indian Ocean is practically a British lake, over which trooper and trader can be despatched with reasonable safety.

The importance of the Persian Gulf now stands out. A Russian port on the Gulf, connected with Russia by

The Persian Gulf. rail, or a German terminus of the Baghdad railway at Koweit, could entirely alter these conditions. Such ports would not be isolated stations like Obok, but have the full resources of their countries behind them.

The building of a 4,000 ton steamer on Lake Baikal is an example of what can be done in the way of naval resources, even at the thousand mile end of a crazy railway, and shows the danger of allowing Germany or Russia a port in the Gulf !

Mastery of the Gulf of Suez means complete control of the Indian Ocean. Coal is a reasonable contraband of war, and were France the enemy, colliers for Obok and Diego Suarez must run the gauntlet of the Cape. The preservation of the *status quo*, and the barring of the Persian Gulf to all European powers, is a necessity on which too much stress cannot be laid.

There are certain commercial undefended coaling stations in these waters, such as Port Said, Perim (British), Beira and Delagoa (Portuguese), Mombassa, etc., mostly with a small supply of inferior coal. The Port Said store we may expect to control. Perim we can protect, and there remains the question of the coal of neutrals.

(10) CONCLUSIONS AFFECTING THE ROUTE FROM INDIA.

Summing up therefore the deductions from the foregoing inquiry, it would seem that as regards the strategical application of Sea Power to the communications of India, we find :

Conclusions re route from India.

1. That the Suez Canal route is not so impossible as was formerly considered, and that there are great difficulties in sending the ditch trade colliers and otherwise, round the Cape.
2. That so long as we control the coal at the Cape, and the southern exit from the Canal, our position in the Indian Ocean is secure, though exactly how this is to be brought about is a matter for the naval strategist.
3. That the Persian Gulf must never contain a port belonging to a European Power, more especially one that can connect it by rail with Europe.

(11) THE ISTHMIAN CANAL.

In considering the strategy that affects the despatch of combined expeditions from India, the prospect of the change in the situation in the Far East, that the completion of the Panama Canal will bring about, should not be overlooked. Trade that went round Cape Horn to Australia and New Zealand, or from Esquimault and San Francisco to Japan, or from *viâ* the Sandwich Islands to Australia, will then go through this Canal.

There has been a school of thought in England, hopelessly short-sighted and uninstructed, but insistant, that has urged the cession of our profitless West India Colonies to the United States. The Isthmian Canal was apparently unknown to them. Yet Jamaica, a naval dockyard, lies straight

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across the route from New York to the Isthmus, the Virgin Isles are athwart the route from Europe, while St. Lucia, Trinidad, and George Town (British Guiana), fortified coaling stations, dominate more southerly routes.

The effect of this Canal must be to greatly enhance the naval power of the United States, allowing as it must a much quicker transference of strength from the Atlantic to the Pacific, while it will enable foreign men-of-war to reach the Far East without begging British coal *en route* in time of strained relations. In time of war, the neutrality of the Canal, if assured, would obviate further advantage in this direction, while undoubtedly the belligerent holding command in the Pacific would be able to control the traffic that must defile through the Canal.

The effect of the Canal therefore, while detracting from the amazing position that our supremacy in the Red Sea and Ocean confers, is not entirely harmful in its effect on our naval supremacy. Such loss as we shall sustain will probably be counteracted by the establishment of a complete naval dockyard and arsenal in Australian waters to take the largest ships. With a fine coal supply and a growing country behind, the advantages of such a base is obvious.

(12) THE APPLICATION OF SEA POWER IN THE EAST.

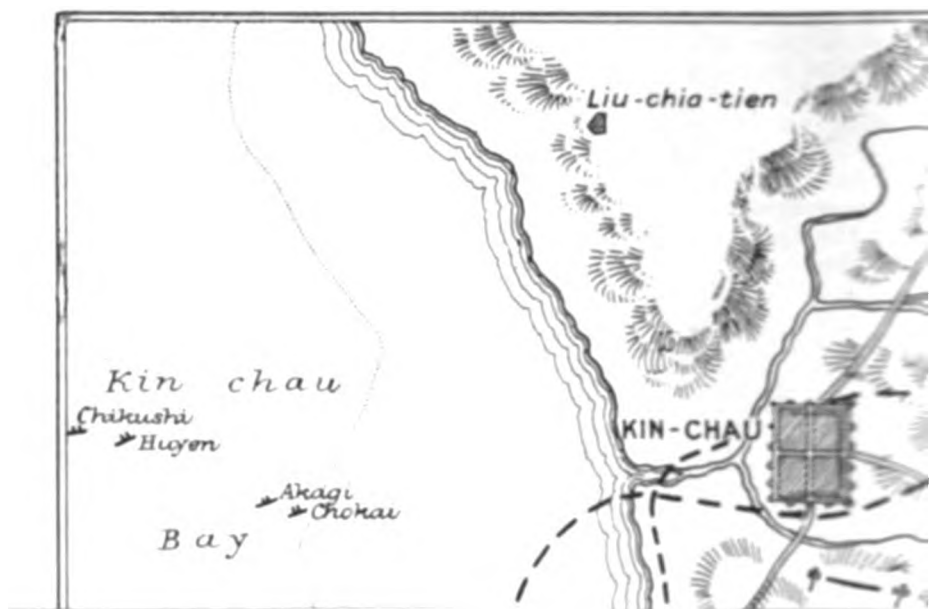
Following on the vital question of the communications with Europe we come to the offensive application of Sea Power in its broad dual meaning, to Eastern waters considered by the light of foregoing conclusions.

It has already been shewn that with the exception of a campaign based on the Gulf, India's oversea expeditions are unlikely to be very strong in army strength, and that the general nature of such ventures would be in pursuit of the establishment of supreme naval control in the Far East. The necessity for command in the seas to be crossed has also been dwelt on. (Part I, 3).

Now since the existence of hostile fleets depends on their having coaling stations within reach, it seems that the practical command of the sea is to be obtained not only by destroying hostile ships in battle, but by denying them coal. To deny them coal, it would be necessary to capture their coaling ports, to protect the coaling ports of the weaker neutrals, and to prevent the establishment of special temporary war coal heaps. Their only source of supply, if such operations could be carried into effect, would be the most precarious one of direct supply by collier at sea.

Now the simplest method of denying coal, with the exception of existing stocks, is to prevent the arrival of colliers. In the Indian Ocean we should be able to do this, but in the Far East, with coal coming by sea from Japan and America this would be very difficult if not impossible.

Owing to the geographical position of India, the gradual absorption of hostile coaling stations, and the protection of neutral ones by combined operations, is a feasible and reasonable way of gaining the object in view. It should also be noticed how favourably Australia is



placed for a similar policy, and what a factor she is to be in the future, with her developing coal supply.

The command of the Indian Ocean that suffices to secure the safety of British vessels rounding the Cape or threading the Canal, is equally potent to protect any expeditions sailing west and south from India, whether carrying troops to join Imperial gatherings, or for the reduction of coaling stations in those seas, as discussed in paragraph 9.

The protection of expeditions proceeding eastwards through the Straits would be more difficult. These expeditions would be proceeding either in pursuit of the policy of capturing coaling stations, as a factor in getting control of the sea, or in the acquisition of an adversary's colonies after complete control of the sea had been obtained. The latter course has the defect of needlessly dispersing force, and only forces, naval and military, that could not be brought into the theatre of war at more vital points would be employed. Such operations, however, might be the only mode for England of forcing an adversary not dependent on the sea to end a war.

In despatching such expeditions, our fleet in Eastern waters must have sufficient command for the convoy to be safe with an escort, or for single ships to run from port to port without great risk.

(13) COALING PORTS IN THE FAR EAST.

The defended foreign coaling stations in the Far East are as follows:—

<i>British.</i>	Singapore.
	Labuan.
	Thursday Island.
	Hong Kong (Naval Dockyard and Base).
	Wei-Hai-Wei.
<i>French.</i>	Saigon.
<i>Japanese.</i>	Sasebo.
	Nagasaki.
	Kiroshima.
	Kure.
	Simonoseki.
	Yokosuka.
	Tsusima.
<i>Russian.</i>	Vladivostock (often ice bound for weeks, if not months).
	Port Arthur.
<i>German.</i>	Kiao Chaou.
<i>United States.</i>	Manilla and Guam.

If we include the South Pacific, we have a British Naval Base at Sydney and a coaling station at Brisbane, while there is a French fortified coaling station in New Caledonia.

Category A would include any overland enterprise, from a punitive raid to a war with Russia and a campaign on the Helmsk through the Dasht-i-Iut.

Category B comprises two sorts of Expeditions,—

(a) Those against Native States.

(b) Those against European Powers or Japan.

In (a) would come our Burmese, Persian, and China Wars, while in (b) we have had nothing since the capture of Java and the Mauritius.

Category C would include such expeditions as the force sent to Africa in 1899, and to some extent those sent to Egypt, the Sudan or Abyssinia, inasmuch as they were not entirely supported from India.

From what has already been put forward, it follows that *Category A* is affected by Sea Power, so far as the throwing of reinforcements and the replenishment of expended *personnel* and *matériel* is concerned, which vary from drafts to the safe despatch of Army Corps.

Expeditions in *Category B* are further dependent on *Category C*—Oversea Expeditions—naval supremacy in Indian and Eastern waters when war with a Naval Power is concerned. When however the expedition is against a non-naval state, such as a native state or China, the carrying capacity is the only part of Sea Power that is in demand.

Category C again is dependent on sufficient naval supremacy and carrying capacity for the safe despatch of the expedition, which is of course to be supplied by sea in its new destination.

(6) SUMMARY OF PART I.

Summing up the conclusion which it has been the endeavour to elicit in the previous pages, it would seem that so far as Expeditions based on India are concerned the influence of Sea Power is such as follows:—

1. Owing to the geographical position of India and the naval supremacy of England, the former is an advanced base of extreme strategical value whence overseas expeditions small in number are immense in their effect.

2. That from the fact of Russia's vicinity, and possible heavy reinforcements may be required at any time, and that Sea Power must keep the road open, and that for this same reason expeditions that can leave India can only be numerically small till Russian course of action be certain.

3. That owing to the nature of our position in India, the violent possibilities below the surface, and the drain that any expedition causes in a greater or less degree, free communication in time of peace and war is an essential, and without Sea Power this would be impossible.

4. That overseas expeditions cannot safely leave India until the command in the waters to be crossed has been obtained.

PART II.—THE APPLICATION OF SEA POWER TO INDIA.

From the foregoing pages, it is clear that in the application of Sea Power for the benefit of expeditions based on India, the main objects to be aimed at are :—

- (1) The safety of the communications of India with Europe.
- (2) Sufficient command of the local seas, to despatch and safely base on India, any required expedition.

It should also be mentioned that even when an expedition proceeds overland from India, warlike stores, *personnel* and animals may come to India not only from Europe, but from Australia, Canada, and the Far East. Once again therefore it is evident how bound up with the general question of British naval supremacy is the military situation in India.

(7) THE COMMUNICATIONS OF INDIA WITH EUROPE.

This question alone involves one of the biggest Imperial controversies of the day, *vis.*,—the merits and possibilities of the Cape or the Canal routes.

The Canal.

A few years ago it was generally believed that in the event of war with a maritime power, we should have to abandon the Canal route ; but further study of the question has caused expert opinion to think that it can be kept open. The naval strategic front of England is said to be from the Channel round to the Hellespont, watching the naval ports of Europe including Bizerta ; but just as a block-house line is the safest route for unescorted convoys, so would the Mediterranean route, with the naval force concentrated along it, be the safest for our eastern commerce and troopers. It is a question which war alone can settle, but the following points are worth bearing in mind :—

(a) Ditchers and tramps are almost entirely built for the England to Bombay trip *via* the Canal and are neither equal to the strain of the voyage and weather round the Cape, nor have they coal capacity to enable them to go from coal point to coal point.

(b) The coal supply and coaling accommodation at the Cape is entirely inadequate to the strain of supplying the Eastern trade, and ships might be kept one or two months there *before* they could coal, while colliers proceeding there from England would consume part of their cargo getting there. During the South African War, the coaling of all the war shipping was attended with many delays.

(c) The sinking of a ship in the Canal to block Blocking the Canal, it is not nearly so feasible as it might seem.

Surely we should assume a strong enough line in the event of war to use our position in Egypt to insist on placing a guard on every foreign ship passing the Canal between Port Said and Suez.

(d) Even the sinking of a ship laden with bricks in the Canal would not be the catastrophe usually imagined. The depth of the Canal is about 30 feet, while freight ships draw 24 feet, so that it would be a question of raising a vessel 6 feet, no great task with the resources of the Canal Company, and towing her to the Canal mouth or lake opening.

It would therefore seem that the route *via* the Canal is as likely to be available as any other, and we may reckon on using it.

The following naval considerations have some bearing on the question of trade ships and troopers to the East *via* the Canal.

Naval Notes.

(4) One ship in every three that goes through the Canal is not English. A warship of a Power at war with England dare not sink a ship till she has ascertained that it did belong to us. By day the route would be sufficiently patrolled, unless we were beaten from the seas, and by night a Foreign cruiser would have to overhaul every passer by and probably board her and examine papers, ere she dared effect seizure. Under such conditions it is not likely that many prizes would be made in each night, and for every vessel taken many would elude capture.

Convoys.

(g) Convoys on the contrary attract attention by their smoke, are easily located at day, can be followed, and are a fair mark for torpedo boats at night. On a route not entirely clear of hostile cruisers, but which our own cruisers patrol, ships that slip along as best they may, would probably have a better chance of escape, and a more satisfactory voyage, than if tied to a convoy, and the pace of their slowest consort.

These are points which add to the likeliness of the Canal route, and to the necessity of holding the Mediterranean as the road to India.

To pursue further the discussion of the alternative route to India is perhaps outside the scope of this essay and encroaches on a ground which only Naval strategists are competent to cover, and we may confine ourselves to the question of how vessels passing the Cape and issuing from the Canal, may be safely passed on to India, but as Sea Power is largely a naval question, sea topics must be discussed as best a landsman may.

Bound up with the question of Sea Power in all waters, but especially in far distant seas is the matter of coal supply and coaling stations, or what is now termed "Coal Strategy," and an outline of the chief facts regarding them is essential before proceeding with the discussion in hand.

(8) COAL STRATEGY.

From Sail to Coal.

A century ago, war vessels, or any other craft, could keep the seas, so long as their food and water supplies held out, and important repairs were not necessary. Even then almost any small port would afford supplies and materiel for rearmament. Now, however, coal is a necessity, which has entirely altered the whole matter of naval strategy, and every vessel must stow enough of it to carry her from one coaling port to another. Hostile cruisers are dependent for their action on coal supply, blockading fleets must coal at sea, a difficult operation, or else always have a proportion of vessels away coaling.

When colliers accompany a fleet, they must often keep up with it, which means that they expend far more of their freight than when steaming quietly in the way of trade, over an equivalent distance.

while they must retain sufficient coal to take them back when empty. So that coaling by collier convoy does not give a very satisfactory, or far reaching, coal supply.

Every steamer has its economical rate of speed, and directly this has to be enhanced, the expenditure of coal is out of all proportion to the distance covered. Vessels chased by others that have more coal capacity, or a nearer coaling port, may be rendered quite impotent. A foreign cruiser making *via* the Cape for Diego Suarez might steam there quietly at her economical speed, but if forced for some days to travel faster, by British cruisers, who could themselves coal at Ascension, St. Helena or the Cape, she might never get to her destination. Such "riding off" from coal supplies is to be a prominent feature of modern minor naval strategy.

For fleets and cruiser to have freedom of action there must be an abundance of coaling stations available. Coaling stations are of two kinds, defended ones, varying from naval ports and fortresses to defended coal heaps, and commercial ones. In time of war, a power that has a naval supremacy can establish on any suitable shore a temporary coal heap, and the most economical form of this is a row of anchored colliers, if the ships can be spared.

Malta is a fortress coaling station, Aden is more a fortified coal heap; Port Said and Saint Vincent in the Cape Verde Islands are types of commercial coaling stations.

Now all these coaling stations can only store a certain amount of coal, and are fed almost daily by colliers from Europe, chiefly England, while Welsh coal even for the East and the Far East comes through the Canal.

The following coaling facts are worth noting here :—

(a) The speeds of all vessels are measured when burning hard Welsh coal, and that class of coal is found in all the wide world in England alone. A vessel that does not burn Welsh coal loses 25 per cent. of her speed. Thus a twenty knot foreign cruiser becomes a fifteen knot vessel when Cardiff coal is denied her.

(b) All coal deteriorates by keeping; in a few weeks Welsh coal is no better than any other, therefore it is useless to accumulate stacks of it at coaling points. Whosoever would use it must be assured of a constant and steady supply. The amount that foreigners depend on us for coal is instanced by the fact that an average of six colliers a day leave Cardiff for France alone!

(c) The position of England therefore with regard to the rest of the world, so long as no one else can find Welsh coal, and no other fuel can be devised, is amazing, and is one that is not usually realized by the lay mind. The strategic value of the Cape, and the command in the Red Sea, are immense, viewed by the light of this fact.

(d) The steaming capacity, *vis.*, the coal carrying capacity, varies in different vessels, but the very latest type of cruiser, or commerce destroyer, specially built for independence in this respect, can only steam 12,000 knots at its most economical speed, *vis.*, 10 knots an hour, any enhancement

Effect of our monopoly
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(c) Coaling stations, naval and commercial, in the east are almost entirely dependent on coal from Europe or America, and we possess the few ports that are not so. Table Bay and Durban can be supplied locally with indigenous though inferior coal, and the same applies to the Indian ports, to Labuan, though here our supply is not sufficiently protected, and to Australia, whose future as a strategic self-supporting base will be of vast importance. Russia can draw coal of sorts from Siberia for Port Arthur, while Japan has her own mines, but none of this coal is of much value to warships, especially cruisers. Other ports are entirely dependent on sea supply, and a glance at the map will show how isolated are most of the coaling stations, especially the non-British.

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A few words on the question of the coal of neutrals in war will not be out of place. It is held to be a direct breach of neutrality for a neutral to supply a belligerent warship with coal, save perhaps to steam on at her economical speed to the next port. It is always possible, and indeed not improbable that a weak neutral might be coerced into supplying coal or have it forcibly taken, and be unable to take up the challenge. If such happened against us, it would be for us to clear out that neutral's coal and see she got no more. The strong maritime power can generally expect to profit in the end by such breach of the law. At the time of war might makes right since the earliest days of man. We should probably make it our business to protect, possibly garnish the coal ports of a weak neutral, lest our adversary be tempted to find them in despair of fuel.

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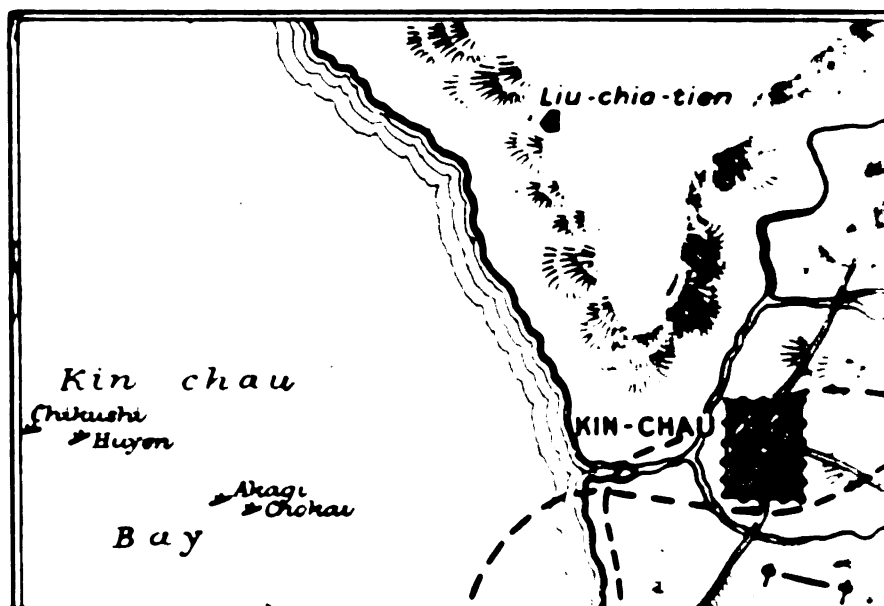
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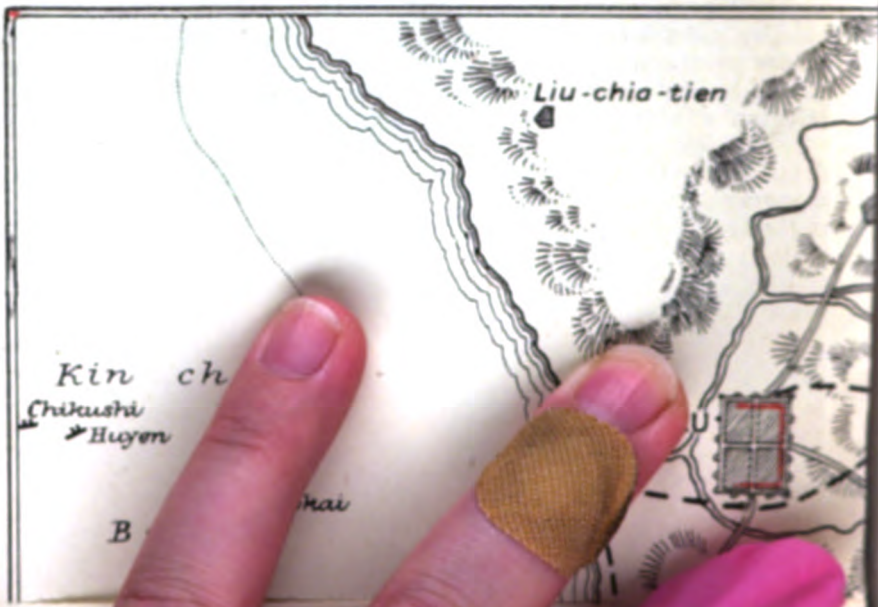
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	Port Arthur.
<i>German.</i>	Kiao Chaou.
<i>United States.</i>	Manilla and Guam.

If we include the South Pacific, we have a British Naval Base at Sydney and a coaling station at Brisbane, while there is a French fortified coaling station in New Caledonia.

There are coaling heaps also at various undefended places—in Java and Sumatra, in Borneo (Dutch), in the Pelew and Ladrone Islands (German), in Formosa (Japanese), and, of course, at Shanghai and Tientsin. At most of these coal is not to be found in very large quantities, while small stocks exist at almost every minor port where coasting steamers and local traders touch.

(14) RESUMÉ.

Most of the conclusions which it seemed possible to draw from the subjects discussed have already been stated, but since a wide area has been covered, it seems desirable to finally summarise, at the risk of some repetition, the various salient points elicited, as follows :—

(a) Owing to India's continental position with a powerful and possibly hostile military neighbour, as well as to the volcanic possibilities underlying her peaceful exterior, large forces can rarely leave India, and the Indian army exists for the defence of India.

(b) From her geographical and strategical position, however India is able to send out combined expeditions, possessing a strategical value out of all proportion to the actual numbers despatched. Such minor armies can usually be spared, save in the gravest junctures.

(c) The security of the route from England is a necessity at all times, but especially in the event of a war with Russia, or other big campaign, and that a reasonable command of the sea is essential in waters to be crossed by an expedition.

(d) That England's policy is first to secure her trade routes by obtaining navalsupremacy, after which operations against the enemy's colonies may be the best way to finish matters ; also that owing to the coal question, the denial of all coal to the adversary's vessels must hasten the gaining of that supremacy.

The capture of hostile coaling stations, and the protection of weak neutrals' coal-heaps, is the way to deny coal to the enemy.

(e) That it is expeditions of this nature—to capture coaling stations, or to protect them, and to capture colonies—that are best suited to the military capacity and the strategic position of India, and in which our Sea Power in the East may best be displayed.

5.



THE AUXILIARY WEAPONS OF CAVALRY.

BY CAPTAIN F. C. LAING, 12TH BENGAL PIONEERS.

In the April number of this Journal I had the privilege of placing before the reader a suggestion for a cavalry weapon in the shape of the "Sword-lance" and an article on "Stick-defence." I now propose to discuss some of the principles of hand-to-hand combat and to show, if possible, how the "Sword-lance" and "Stick-defence" can be turned to account in war.

I do not purpose entering here into the question of tactical rôle of cavalry, but simply to indicate briefly some of the essentials of a cavalry combat, and the weapons and method of fighting which a hand-to-hand combat entail.

At the present moment when the lance, except for instructional and ceremonial purposes, seems to be very much under a cloud, it would perhaps be well to recapitulate some of its uses in war before cheerfully consigning it to the museum. The Boer war has undoubtedly shaken, if not upset, many of the theories as to the proper use of cavalry, but there is too great a tendency to pooh-pooh the experiences of former wars, and to lay down the law as to the limits of cavalry action. We hear that fire is everything, that shock action is a relic of barbarism, that cavalry are destined to be solely the ears and eyes of an army and numberless other stern dicta based on our last great campaign; but however true these may be, we must not forget that other European nations are still certain as to the desirability and possibility of shock action both for cavalry and infantry, that fire action is limited to the supply of ammunition which repeatedly fails at the critical moment, and that the moral effect of a cavalry charge is far greater perhaps than its actual effect, even greater sometimes than fire action. It is said that a few more charges like the one at Elandslaagte would probably have altered the whole South African campaign, not so much on account of its physical result, but because of the mental shock produced in the minds of the Boers who were subjected to it; no one could say that if the cavalry had not charged but resorted to dismounted fire the result would have been as great; in other words, the horror of cold steel is infinitely greater than that of lead under certain conditions. The great results obtained by cavalry in their charges against savage warriors is too well known to need emphasising here, and the experiences gained in ancient and modern warfare tend to show that shock action has been, is still, and must continue to be, seriously considered in the training of cavalry for war.

If then we concede that shock action is not only a possibility but a probability, we have now to consider what arm or arms the cavalrman must carry in addition to his rifle. I propose to take the lance

first and before proceeding let us hear what that fine old soldier of the 42nd, James Auton*, said regarding the French cavalry at Quatre Bras:—"Of all descriptions of cavalry, certainly the lancers seem the most formidable to infantry, as the lance can be projected with considerable precision and with deadly effect, without bringing the horse to the point of the bayonet." This is surely an argument of some worth and to this can be added further cases where the lance comes in useful, for example, in combats between cavalry, in attacking artillery where the gunners seek protection under their guns and can only be reached by the lance, in pursuit where the fugitives throw themselves down on the ground, against savage warriors who stand up to the charge with no intention of flinching, and many other occasions will occur to the reader where the lance is the best weapon the cavalryman can have in his hand. But if the arguments in favour of the lance are great and many, those against it are also weighty. To mention a few: the lance is cumbersome to carry, much of its efficacy is lost when the mêlée commences after the first shock of a charge, and especially against cavalry, because it does not lend itself to close fighting, and it frequently gives the unwary trooper away because he forgets that although he conceals his own body and horse his lance-head may clearly show above the cover he has managed to get. This species of negligence has happened before and will happen again until either the lance is discarded for ever which, after all, is unlikely, or the jointed lance is adopted.

In an article which appeared in the June number of *Blackwood's Magazine*, quoted in the *Pioneer's Army* letter of the 19th June 1903, the writer ably protests against the abolition of the lance, and according to the letter referred to, it appears that "the authorities are leaning towards a compromise,—some combination of rifle and lance"; the experts, however, object to such a weapon on the ground that "it cannot have a proper balance, it will be of little or no use for parrying the attack of an enemy except in the hands of an extraordinarily powerful man, and it will lack the armed butt which forms a most important part of a lance's power." In place of this "lance-rifle" I again venture to suggest the introduction of the "sword-lance," which, for the benefit of the reader who has not seen the April issue of this Journal, may be briefly described as a jointed lance, carrying a straight sword in the shaft with a sharp point instead of the button which not only serves as the present lance butt but is intended to be used as an additional offensive weapon in attack with the sword. The method of using this kind of lance is of course the same as the present pattern and requires no special explanation except that it must be understood that the lance, when not wanted as such, is carried folded, in the same way as the present sword. A reduction in the length of the lance finds favour among many officers, and this would be of benefit to the "sword-lance," inasmuch as the joint could be placed nearer the head and thereby reduce the strain on the

* From "A Retrospect of Military Life;" by James Auton, published 1841.

joint ; I have reason for believing that the joint need not weaken the lance which is I understand the chief objection.*

I turn now to the question of the sword as the auxiliary arm of cavalry, and I approach the subject with diffidence because not only is the weapon itself which I suggest different to the regulation pattern, but so is the method of use, and I stand the risk of severe criticism from some, perhaps all, those swordsmen in the army who may by chance read this paper. In the first place, then, I venture this opinion that a very small percentage of men know how to use their swords properly ; secondly, that the leisure time at the disposal of the soldier is so limited that it is almost impossible for him to become an expert swordsman even if he had the inclination ; thirdly, that in the excitement of battle the average man uses his sword in the good, bad, or indifferent way which comes naturally, and not necessarily in the way he has been taught ; fourthly, that unless a hard blow is received on the "forte" of the sword and in the correct way it will break ; fifthly, that the regulation weapon is much too heavy and clumsy to wield properly ; and, sixthly, that the present sword does not lend itself to close fighting and is of small use when the blade is broken. How then are we to find a remedy for these evils, and what sort of weapon is required to do it ?

Without going into too much detail the sword I propose is a straight thrusting weapon with a triangular section from the hilt towards the point, perhaps a rapier in its nearest approach, with a double cutting edge of some twelve inches up to the point, say the length of the "feeble" ; a light steel guard, and instead of the usual button, a sharp spike two to three inches in length.

The reasons for having a sword of this pattern are as follows :—

(1) In the blind fury of a hand-to-hand combat there is small chance of even a fair swordsman guarding a blow in the orthodox way ; instinct will make him put up his sword, but it must be strong enough to bear the blow at any angle, and this is only possible with a blade of triangular or round section if the thickness and weight are to be kept within moderate bounds.

(2) The blade is made straight because the thrust is the most deadly, and also to enable it to fit into the lance shaft.

(3) The cutting edge is useful because the average man will be tempted with excitement of a hand-to-hand combat to make a "slog" at anybody or anything which comes before his half-dazed vision, and he *may* be able to inflict some damage on his adversary.

(4) The "spike" is for close fighting where there is no room for cutting or thrusting, or if unhorsed he is assailed by two or more opponents at the same time, or again if he is locked in a death struggle with a man and unable to get free ; in this case it takes the place of a dagger and can be used as such even if the blade is broken off short.

* A model of the proposed weapon is now in course of construction and I hope to be able to submit it to expert opinion before very long.

In advocating a sword of this kind let me deprecate the idea or my wishing to disparage the act of swordsmanship as at present taught. Far from it, I quite admit that the expert swordsman stands a good, if not the best, chance of coming out of a fight alive, but I fear that the average man is never likely to be an expert, and we must therefore train him to do well what his instinct teaches him to do badly. The expert swordsman has his nerves, his eyes, and his muscles all working together, all under control and all helping one another, and he can perhaps even in the excitement of battle have sufficient command over himself to be able to utilise his previous knowledge, but this is not the case with most men; the skill of the great fencer cannot be attained without years of incessant toil, and few soldiers, officers or men, can hope to become great fencers. In place then of the swordsmanship taught in the army at present I would suggest a form of it based on the "stick defence" described in this Journal last April, and my reasons for doing so are, that it is fairly simple to learn, it comes more instinctively to a man, it is ambidextrous and the "spike" is a formidable adjunct to its offensive powers. The sword must in fact be used in a way similar to the stick, and if the reader will refer to the article mentioned, he will see the principles of its use described and all that is necessary is to substitute the sword for the stick. In support of my suggestion I may mention that when Mons. Vigny, the instructor and inventor of "stick defence" met the best military exponents of single stick, his system enabled him to defeat them with ludicrous ease. Now to sum up the various points which have been touched on.

(1) The lance should not be discarded, because of its moral effect and its length of reach, and we cannot afford to be without it if European nations hold to it.

(2) The regulation lance is too long, too clumsy, and often betrays the presence of the lancer.

(3) To avoid this, the lance should be jointed and the two parts only fixed together when required for use.

(4) It should be shorter to render it stronger and lighter.

(5) The sword should be straight, triangular in section and lighter than the present one.

(6) It should have a subsidiary point for close fighting.

(7) The method of using it should be taught, more with a view to helping a man's offensive and defensive instincts in a fight than by the laborious process of trying to turn him into an expert swordsman.

(8) The application of "stick defence" to swordsmanship in no way hinders the learning of the latter art, but rather enhances it by introducing extra cuts, guards, and points.

The final conclusions we arrive at are—

(a) Considerations of weight are now so great that only one auxiliary weapon can be carried and either the sword or lance must be discarded unless a combined weapon is introduced.

(b) A combination of rifle and sword is too cumbersome and the danger of losing both together is too great to be risked.

- (c) The sword-lance enables the trooper to be lancer or swordsman as circumstances of the moment dictate.
 - (d) If he breaks his lance he can have recourse to the sword part of it.
 - (e) If he breaks his sword he still has a dagger.
 - (f) The weight of the sword-lance is little, if any, greater than that of the present lance.
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THE BATTLE OF KINCHAU.

BY MAJOR G. GILBERT, 34TH SIKH PIONEERS.

The result of this battle has been so sensational and startling from a military point of view as to rivet the attention of all thoughtful soldiers. So many theories seem to have been upset and illusions shattered. The mail papers depict in unusually graphic language the amazement of the civilized world over the Japanese victory, an amazement bordering on consternation and bewilderment not unmingled with admiration for this truly meteoric nation.

The struggle for national existence demands constant preparedness for war. Each nation seeks to arm its forces with weapons superior to those possessed by the other. All the inventiveness of the age is brought into requisition to acquire this superiority. The tendency of these inventions is towards the production of weapons with longer range, greater rapidity of fire, and more deadly explosives. The progressive gain in this respect, so theorists have asserted, is all in favour of the defensive. Experiments carried out with each successive invention are so increasingly accurate as to engender the belief that the attack will suffer appalling losses in battle, not to speak of the difficulty in getting even the most highly disciplined troops to face the sheets of lead which sweep the fire zone with the most withering effect on the nervous system. The Japanese have just demonstrated that the defensive is not so all-powerful as was supposed. They have shown that all modern military theorists have failed to realize, *ceteris paribus*, that the human element is still the most potent factor in deciding the fate of battles; and that the moral effect of destructive missiles and explosives, however thick, however rapid, and however disastrous they may be, will never be so great on the nerves as the aspect of men who unflinchingly advance through it all, regardless of losses and determined only to get home.

It is the irony of fate that this lesson should be brought home to us by Asiatic soldiers. In Europe for more than twenty-two centuries, the doctrine has been firmly held that an Asiatic army, even though greatly exceeding in numbers, is no match for a European foe. The inception of this belief dates from the battles of Issus and Arbela, and it was confirmed on the plains of Plassy and Assaye. There can, I think, be no question that the Japanese have arrested, if they have not shattered, this belief on the battlefield of Kinchau. Certainly they have immeasurably raised the military value of the Asiatic soldier at a bound, resuscitating it as it were from the ashes of its fallen greatness. And as we possess the second largest purely Asiatic Army in the world it should be a subject of absorbing interest to us. We are compelled to admit that superior courage alone did not bestow on the European soldiery the ægis of military supremacy. It is worth while to reflect on the result of those Perso-Macedonian and Anglo-Indian battles had the Asiatic Army in each instance been equally well armed, equipped, drilled, disciplined and officered as the opposing force.

The Russo-Japanese war is the first instance in history that highly organized European and Asiatic armies have fought each other on equal terms with results so far entirely disastrous to the former.

In the absence of fuller details of the battle, which in all probability will not be to hand for months, judging from the unusually severe press censorship exercised by both belligerents, I have been guided by such portions of General Oku's despatches as have been telegraphed abroad.

In attempting to describe a battle, besides the necessity for full details of the fight, it is necessary to attach a sketch showing the topographical features of the battlefield and the various phases of the fight, to make it more intelligible. Unfortunately the largest scale map to be had in this country of the Kwantung Peninsula is the one issued by the Intelligence Branch of the Quarter Master General's Department which is on a scale of $\frac{1}{420,000}$ or 7 miles to the inch and therefore altogether too small for tactical illustration. I have enlarged a section of this map to a scale of $\frac{1}{63,360}$ or one mile to the inch, adhering as accurately as possible to the topographical data in the official map and filling in the minor features and other details as suggested by those data. I have not shown contours as they are entirely wanting in the official map; though had even the heights of the hills been given, it would have been possible to construct, with the datum sea level, a contoured map fairly accurately for all practical purposes. I gather that these hills are from about 800 to 2,000 feet above sea level.

No sooner had Kuroki defeated General Sassulitch at the battle of the Yalu on 1st May, than the second Japanese Army was despatched, not in dribblets, but as an entire unit in 80 transports with Port Arthur as its objective. It consisted of the 1st, 3rd and 4th Divisions and was disembarked at Pitsewo during the first week of May. There was slight opposition which was quickly disposed of by a Naval Brigade which had been landed as a covering party. Within ten days after disembarking his Army, General Oku had occupied Pu-lien-tien, driving out the Russian garrison, had cleared the Liautung Peninsula between Pulientien and Kinchau, and had reached the vicinity of the latter town.

The Peninsula of Kwangtung is connected with Liautung by an isthmus which at its narrowest part is only $2\frac{1}{2}$ miles wide and which lies between the Bay of Kinchau on the west and Taliénwan Bay on the east. The walled town of Kinchau is situated about three miles due north of the centre of the isthmus and about a mile from the head of Kinchau Bay. An off-shoot of the Irkhakhun mountains in Manchuria runs down the centre of the Liautung and Kwangtung Peninsulas terminating at Cape Lao-ti-shan, a locality which Admiral Togo's operations have brought so prominently into notice since the commencement of the war. This mountain range throws off numerous spurs east and west down to the Sea Coast. The whole country is broken and hilly and quite unsuited for the employment of cavalry. The railway follows the eastern shore, and the high road from Pu-lien-tien to Port Arthur hugs the western shore of the isthmus.

With the object of covering Dalny and Port Arthur and checking the advance of the Japanese Army, General Stössel took up a strong defensive position across this isthmus. All the ingenuity of his Engineers and the resources at his command were brought into play with the object of rendering this position stronger by artificial means. The extreme right of the Russian position rested on Hu-shan-tao and the extreme left on Nanshan Hill which was the strongest part of the line. At this point the topographical features of the ground were extremely unfavourable to the attack. The position at Nanshan was upon high steep ground. The earthworks and other defences were walled, loopholed, and protected with all modern appliances. A series of batteries, strongly emplaced, crowded the crest of the hill, while rifle pits extended round the sides of the hill. Mines had been placed lower down the slopes. The armament of these redoubts consisted of seventy cannon of all calibres, including howitzers and quick-firers, also eight machine guns. Several rows of entrenchments, one above the other, connected the redoubts, and the whole of the front was protected with barbed wire entanglements, pits, etc. A four-gun battery was placed at Ta-du-fang with a range of 7,500 yards; also another heavy battery of eight guns on the right of the position at Hu-shan-tao. The position on the whole was unquestionably stronger than that of the Boers at Colenso or Magersfontein. This position was held by the 3rd, 4th, 5th, 12th, 13th, 14th and 16th Infantry Regiments, each presumably having its full complement of four battalions, the Kwantung Fortress Artillery, five companies of railway and frontier guards and marines. The total strength, though not definitely known, was estimated by General Oku at not less than 20,000 men.

About three miles south-east of the town of Kinchau there is a commanding peak, whence a ridge runs down in a south-easterly direction to the Ta-hu-shan promontory. The main ridge runs north-east, gradually curving round to the east and then to the south, thus forming a valley about 10 miles long by about 4 miles wide, through which a small stream flows in a south-easterly direction into Kerr Bay. These two ridges are almost at right angles to one another with the peak at the apex of the angle where is situated the village of Chu-li-Chun. About 3 miles due north is the Chen-cha-tun and on the southern ridge and due east is the village of Chatzuho.

On 20th May General Oku had concentrated his entire army, consisting of the 1st, 3rd and 4th Divisions, in this little valley and his outposts occupied the above ridges, his left resting on the village of Chatzuho and his right on the village Chen-cha-tun.

The Russians, on the morning of the 21st, slowly opened fire on the Japanese position with a view to drawing them on, but General Oku refused to be drawn until the exact strength of the Russian position and their Artillery had been revealed. He employed the whole of the 21st and the four succeeding days in a systematic and thorough reconnaissance. For this duty he employed officers only, of whom a large number were out day and night. They worked boldly and drew the fire of nearly all the Russian guns, thereby

unmasking them, and even ascertaining from the segments of the burst shells the calibres of the guns from which they were discharged. They located the exact extent and flanks of the Russian position, the right flank defences resting on the coast at the head of Talienwan Bay, whence search-lights played nightly on the Japanese position. Further reconnaissance revealed the fact that, with the exception of a force posted in the town of Kinchau, the left flank of the Russian defences was weak, leaving sufficient room for a determined enemy to push in and turn that flank.

General Oku on the 25th formed his plan of attack which was as follows :—

The troops to move to the attack at midnight on 25th—26th May.

The Fourth Division on the right flank, the First Division in the centre and the Third Division on the left flank. To the Fourth Division was entrusted the task of taking Kinchau and the objective of the 1st and 3rd Divisions was Nanshan Hill.

The attack was timed to commence at dawn on 26th at 4-40 A.M.

A squadron of warships was to co-operate in the attack at daylight by enfilading the enemy's position from Kinchau Bay.

The troops moved out of bivouac as arranged, but on the morning of the 26th the weather was stormy and foggy, and the darkness was so intense that the Japanese Artillery under the command of General Uchiyama did not begin to fire till 5-40 A.M. Meantime a portion of the 4th Division had captured Kinchau.

The gunboat squadron consisting of the Chikushi, Heiyeu, Chokai, the Akagi and 6 torpedo boats did not open fire until 6 A.M. The Chokai and the Akagi taking advantage of their light draft approached nearer the shore. The Russians replied with all their guns and a fierce bombardment ensued.

The preparatory Artillery fire of the attack had lasted three hours when at 9 A.M., there were signs of the Russian fire slackening and the Japanese Infantry were ordered to advance to the assault. They gained positions within 500 to 300 yards of the outworks and were there checked by the enemy's infantry and machine gun fire. The 3rd Division was assailed on the left flank by a Russian gunboat at the head of Talienwan Bay.

At 10 A.M., the gunboats and the Field Artillery recommenced shelling the Russian position until 11 A.M., when the Russian open forts had been silenced and two batteries of quick-firing guns were seen to retire to the high ground at Nan-kwan-ling.

For the next six hours the Japanese Infantry of the 1st and 3rd Divisions made several desperate charges, some of the officers and men being shot down within 20 yards of the enemys' works.

The 3rd Division advanced so far that it was nearly surrounded by the enemy. The Russians therefore reinforced their infantry on their right flank, two batteries of Q.F.'s from Nankwanling co-operating in a counter-attack, and attempted to charge the 3rd Division, but it was not pressed and the movement was checked.

Late in the afternoon the squadron resumed its bombardment which had ceased at 11 A.M., as their infantry appeared to have reached the base of the highlands of Suchiatun.

With the object of covering Dalny and Port Arthur and checking the advance of the Japanese Army, General Stossel took up a strong defensive position across this isthmus. All the ingenuity of his engineers and the resources at his command were brought into play with the object of rendering this position stronger by artificial means. The extreme right of the Russian position rested on Hu-shan-tao and the extreme left on Nanshan Hill which was the strongest part of the line. At this point the topographical features of the ground were extremely unfavourable to the attack. The position at Nanshan was upon high steep ground. The earthworks and other defences were walled, loopholed, and protected with all modern appliances. A series of batteries, strongly emplaced, crowded the crest of the hill, while rifle pits extended round the sides of the Hill. Mines had been placed lower down the slopes. The armament of these redoubts consisted of seventy cannon of all calibres, including howitzers and quick-firers, also eight machine guns. Several rows of entrenchments, one above the other, connected the redoubts, and the whole of the front was protected with barbed wire entanglements, pits, etc. A four-gun battery was placed at Ta-du-lang with a range of 750 yards; also another heavy battery of eight guns on the right of the position at Hu-shan-tao. The position on the whole was unquestionably stronger than that of the Boers at Colenso or Magerfontein. This position was held by the 3rd, 4th, 5th, 12th, 13th, 14th and 16th Infantry Regiments, each presumably having its full complement of four battalions, the Kwantung Fortress Artillery, five companies of railway and frontier guards and marine s. The total strength, though not definitely known, was estimated by General Oku at not less than 20,000 men.

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The ammunition of the Field Artillery meanwhile was all but exhausted and the guns had almost been withdrawn when General Oku decided on a grand final effort being made once more. The guns afloat and ashore fired their fiercest.

Under cover of this fire the 4th Division, part of which had waded across the head of Kinchau Bay which was shallow, turned the left flank of the Russian defences by assailing and carrying the heights of Suchiatun. Thereupon the 1st and 3rd Divisions, just as the sun was setting, charged once more, leaping over their dead and wounded, forced the Russian trenches, engaging in a hand-to-hand combat with pistol, sword and bayonet, and driving the Russians pell mell out of their last defences. A portion of the Infantry and some guns pursued them far into the night.

The Russians left 70 guns and eight machine guns in the hands of their victors. Five hundred of their dead were found in the works and buried. The Japanese casualties in killed and wounded of all ranks amounted to 3,500.

The Russian position was naturally a strong one and was still further strengthened by earthworks mounting powerful and long range guns. But the weak point was the gap left between Nanshan hill and Kinchau Bay. The choice of the position, when the Japanese had the command of the seas, was not a good one. The position was liable to enfilade fire from warships from Kinchau Bay, though the other sea flank was safe. In my opinion the enfilade fire from the Japanese gunboats materially decided the issue of the day. Yet the 12 hours' bombardment on the part of the Japanese Field Artillery opposed to guns of large calibre is one of the instructive features of the battle.

Moreover General Stössel does not appear to have kept a sufficiently large force in reserve, or, if he did, he does not appear to have used them for counter-attack. The same failing is observable on the part of General Sassulitch at the battle of the Yalu. The only counter-attack made by General Stössel was on the left flank of the Japanese 3rd Division, but it was a half-hearted business. Had it been pushed home with determination, it might have rolled up the 3rd Division and struck the 1st Division also on the flank at a moment when it had recoiled several times from the hot fire poured into it from the Russian works. Later in the afternoon it is inexplicable why his reserves did not assail the right flank of the 4th Division when it reached the heights of Suchiatun. Either he pushed his reserves into the works as reinforcements, or they were standing idly by.

The attack was practically a frontal one. This does not reflect on General Oku, but he was compelled to adopt this course as, owing to the confined space, there was no room for manœuvring or making wide turning movements. In default he had arranged for a squadron of warships to carry out the flank attack. The 4th Division did nothing more really than work along the cliffs and wade through the shallow part of the Bay, and so gradually fighting their way round the left flank of the Russian position under the supporting fire of the warships. But this cannot be considered a turning movement.

General Oku's procedure on the field of battle was most scientific and he proved himself a most capable leader. He did not commit himself to a premature attack though he had every provocation. His five days' reconnaissance was carried out in a systematic and thorough manner. It is noteworthy that he employed only officers for this work, thereby ensuring accurate and trustworthy information. He then made his dispositions for the attack. The army marched at night, timed to admit of the Artillery commencing the preliminary bombardment at dawn from positions already selected. The Infantry frontal attacks were most gallant and persistent, and after 12 hours' fighting when the artillery ammunition was exhausted, it is difficult to say what one admires most, the dogged determination and unhesitating decision of the General to risk all in a final fierce bombardment and assault, or the cheerful and gallant response to his call made by troops that had already made several fruitless charges.

When contemplating the fire effect in a battle fought under modern conditions, one's imagination is apt to run riot and to picture the awful losses suffered by the combatants, especially by the attackers when they are made to assault a strongly entrenched position. The feeling, amounting to conviction, is not confined to a few officers or to one army, but is internationally widespread. What grounds are there for this belief? Is it that our nervous system being more highly developed is falling more and more a prey to imagination? Or is it that the steady ethical development of the higher races is fast outstripping their primitively acquired capacity for slaughtering their fellow creatures? Whatever be the reason, the conviction is there. If there is any lesson to be learnt from statistics of casualties in battles ranging from ancient times to modern, it is the certainty that the percentage of killed and wounded is less in proportion as the weapons of war get more deadly and far reaching. This may seem paradoxical, but it is a fact easily verified.

The Japanese division consists of 12,000 men, so that the strength of the Army under General Oku's Command was about 36,000 strong, and his losses amounted to 3,500. Now here is an instance of a battle, fought under the most modern conditions conceivable, where the attacking force loses barely 10 per cent. It had certainly to capture a position manned, armed, and fortified excellently. Yet doubtless we shall find later on, newspaper correspondents giving lurid descriptions of terrific slaughter, and creating the impression of another Cannæ with its 80 per cent. of losses inflicted by Hannibal on the Romans. In fact it is surprising and instructive how trifling the Japanese losses were in this battle. They made a frontal attack under every disadvantage of open ground against a strongly prepared position. Their advancing lines must have been fairly thick and crowded, when we consider that 36 battalions and three regiments of Artillery of six batteries each were deployed on a frontage of only $2\frac{1}{2}$ miles.

Ever since the Franco-German war it was asserted that a superiority of 3 to 1 at least was necessary for an attacking force at the decisive point to overcome the defence. Subsequent to the South African War it was maintained that under modern conditions the defensive had gained enormously in its power of resistance over

the offensive, and that it was necessary to have a superiority of 6 to 1. This theory had become a fetish to such a degree that in the recent manœuvres at Delhi and Rawal Pindi, at both of which I was present, it was applied with such unrelenting severity in the Umpires' decisions, as to make the regimental officers positively despair of the possibility of any position, however weak, being ever carried by any troops. It was even sufficient for a Brigade of four battalions and two batteries, at the action of Shekapura on the last day of the Pindi manœuvres, to attack the hill occupied by a battery and four companies of infantry, for that Brigade to be ordered to retire because it was making a frontal attack. It did not seem to signify that the attack was made at sunset, or that there were no earthworks nor entrenchments for the defence, that the defender's infantry were extended singly at 50 yards or more, or that they had no reserves, within supporting distance. As I was an Assistant Umpire myself I freely acknowledge the difficult nature of the duties entailed, but considering the great expense involved in large manœuvres and the undoubted advantage to the troops engaged when tactical schemes are intelligently worked out, I am of opinion that the Umpire staff should not be formed at haphazard, but it should be most carefully selected. Only those officers who have passed the qualifying examination in tactical fitness should be employed, and they again should have shown themselves able tacticians in that examination.

There is tendency with us now, observable at even district manœuvres, to spread out a weakly extended defensive position, the ground occupied being out of all proportion to the size of the force employed. This idea is based undoubtedly on its successful adoption at Mafeking and at Ladysmith. But I think it requires little reflection to realize that such defensive tactics would have broken down against an organized and well disciplined enemy. In fact the fate of Cronje is an indication of what might have happened.

I come now to the question of officers' equipment in the field. It was found during the South African war, especially during the earlier engagements, that the losses of officers exceeded out of all proportion those of the rank and file. It was attributed to their distinctive dress badges and equipment, and it was decided to adopt thorough assimilation with the men. The result was found satisfactory and the change was applied to the Indian Army.

It can hardly be said to be popular with the officers, much less with the native officers who attach a very high sentimental and real value to the sword, though they would prefer a "tulwar." We have a phrase "to obtain a commission;" there is no such phrase in Hindustani. A native of India always speaks of "getting a sword." I asked a native officer, an old campaigner, what he thought of carrying a rifle, he replied, "Sahib I have grown gray and am near my pension, but I should rather be shot for the Sirkar with a sword in my hand than get away carrying a rifle." Personally I carried a rifle throughout the Delhi manœuvres. Perhaps it was the unfamiliarity of the incubus, but I confess I failed to appreciate the advantages of it. It seemed to have an absolutely deadening effect on thought and

action. In supervising one's command, when sketching, writing reports, or when using one's binoculars it always seemed to be in the way.

There is no doubt that in action a very large percentage of officers would be firing at an enemy and would neglect their commands. In my opinion the officers are the collective brain of an army and should leave the fighting to the rank and file. Once an officer begins to fire, his whole attention is fixed on his target and he neglects to observe everything going on round him on his own and the enemy's side. What do the Japanese officers carry? General Oku's despatch says his troops "engaged in a hand-to-hand combat with *pistol, sword, and bayonet.*" It is evident the Japanese officers carrying sword and pistol made good use of them. And there is no reason to suppose that the 3,500 casualties contained a disproportionate number of officers. At the battle of the Yalu, the Japanese *lost 5 officers and 218 men* killed and 33 officers and 783 men wounded. The loss in officers is slightly disproportionate here, but hardly sufficient to attract notice.

MULE AND PONY TRANSPORT IN INDIA, AND ITS EFFICIENCY.

BY CAPTAIN A. C. GABBETT, 87TH PUNJABIS.

It has been shewn in late wars how necessary is the efficiency of transport, and how necessary it is to have a system in peace time which can be easily and quickly organized when active service comes and which will then be thoroughly efficient.

Present wide extensions and long flanking movements in civilized warfare mean more ground to cover for the transport and consequently harder work thrown on it.

Every one knows how absolutely dependent an army is on its transport ; if the transport fails the General's ideas cannot be carried out and the whole campaign may fail, so I repeat that efficiency and absolute efficiency of transport, both as regards personnel, animals and matériel should be sought for, and the best officers and the best subordinates should be employed to make it so.

Home in his "Précis of Modern Tactics" says, the work of an organization cannot properly be tested in time of peace, but if the principles be clearly laid down, and the functions of each person concerned well understood, the organization itself will quickly get into working order when wanted. While then rigidity of form is inadmissible, yet it is desirable to have an ideal standard, a model to reach which, every exertion should be made. The principles to be followed must be clear and definite, details however important quickly arrange themselves if the framework or sketch be based on sound grounds.

It is following the above principles expressed by Home that I would endeavour to bring to notice details which seem to me faulty and which, though they may appear petty to people who have not the working of transport themselves, yet are, to one who has the working details, of all importance.

I am touching only on mule and pony transport which is the most important element in transport, and in which I am more personally interested and acquainted with, than other modes of transport.

Briefly, very briefly, for the information of those unacquainted with the general system of mule and pony transport in India, the system is as follows :—

There are two kinds of transport in India—"Organized" and "Unorganized." The organized transport consists of formed corps or cadres, composed of mules, camels and bullocks, which have a fixed establishment. Corps are intended for immediate service in the field and are complete in personnel, animals and matériel ; Cadres are skeleton corps, capable of expansion, which maintain a proportion of the fixed establishment in personnel and animals, and the full matériel

for the expanded personnel and animals. On expansion of a cadre the personnel required is obtained from reservists who come for one month's training to their cadre head-quarters every year, and also from the drivers of grass mules of certain unmobilized native cavalry regiments.

The animals required are obtained by purchase and also a certain percentage are provided of the same mules of the unmobilized native cavalry regiments as furnish the drivers.

Gear for the expanded strength is kept by the cadre, ready for issue on expansion.

At present corps and cadres are commanded by officers seconded from their regiments for a certain fixed period and are not Supply and Transport Officers, but are attached to the Supply and Transport Corps and are under the orders of Supply and Transport Officers. The British Warrant Officers and Non-Commissioned Officers are obtained from the Supply and Transport Corps. Drivers are enlisted by the Officers Commanding units, and promotions are made by them to the ranks of Kote Duffadar, Naicks and Lance Naicks. In Pack Corps only, a Native Officer is allowed, promoted from the above personnel.

It is with the detail of the above that I am now concerning myself, and would offer a few suggestions for what they are worth as to the improvement in the working of the detail, with the idea of bringing corps and cadres to the highest possible state of efficiency and readiness in every respect for service in the field. They are as follows :—

(1) The Inspector General of Transport should have under him a Deputy Inspector General for each Command, and a staff officer for transport in each District. At present there is an Inspector General for Transport in India, but only an Inspector General for Supply and Transport combined, for each Command. Supply takes up a large amount of his time, and he cannot be expected to go as much into details of corps and cadre as a Deputy Inspector General of Transport for the Command would do. There is now a District Transport Officer for each District, who may be transferred any day from transport to supply work, he works through the Chief Supply and Transport Officer of the District to the Inspector General of Supply and Transport in the Command. His position with reference to Officers Commanding Transport units is very anomalous, in some cases he appears to consider himself the Commanding Officer of Officers Commanding units, while in other cases he considers himself a Staff Officer to the Chief Supply and Transport Officer, who is the real Commanding Officer. Anyhow, their present undefined position is apt to, and frequently does, cause friction with Officers Commanding units. This would be done away with, if Officers Commanding units had access to the Deputy Inspector General of Transport of the Command, as proposed, direct through the District Staff Transport Officer, who would then be in a defined position of Staff Officer only.

(2) The regimental seconded officer in command of a corps or cadre should not be taken for work outside his own corps or cadre for general Supply or Transport work, as is sometimes now done. He should be considered as in command of a unit, and if he officiates in command of another unit, in addition to that of his own unit, he should, as in a regiment, be granted extra officiating pay.

At present an officer when appointed to command a transport unit, accepts the position of Officer Commanding a unit, when he joins he finds that he is practically Supply and Transport Officer, 6th class, and that he is liable for any work in the Supply and Transport Corps that is put on to him :—For instance he may be detailed to go out into the district to purchase ekkas for an ekka corps in Sikkim, or he may be told to work in the Supply and Transport Head Office at work entirely unconnected with his own unit. He may be, and is often, told to take over command of another unit for an indefinite period, in addition to his own command, and when he applies for officiating command pay, he is told that as he is a Supply and Transport Officer, 6th class, he therefore must do any duty ordered in the Supply and Transport Corps without any extra pay, though his responsibility in custody of gear, cash, animals and personnel is doubled. An Officer Commanding a unit is generally a Captain and sometimes a senior one. A Supply and Transport Officer, 6th class, may only have 3 years' service. I therefore advocate most strongly the separation of the transport units altogether from the Supply. An Officer Commanding a unit should be in command of his unit, and his unit only, and he should be able to devote all his time to its improvement and to its thorough efficiency. It is just as necessary for an Officer Commanding a unit to know his men, and his animals, as it is for an Officer Commanding a regiment to know his men, more especially now that nearly as good a class of man enlists in the transport unit as in a regiment ; and if he is to be taken and rendered liable for all sorts of general work, unconnected with his unit, how can he do all this ?

(3) British warrant and non-commissioned officers should be done away with in transport units, and native officers from regiments should be placed in command of two troops with their Troop Commanders (Kote Duffadars) under them ; or, if this is impracticable, British warrant and non-commissioned officers should elect for transport work on joining, and should not be transferred to Supply work or from their own corps or cadres, according to their own particular whim at the time, or because they may get an increase of pay in Supply work.

At present they are liable to be one day in a transport organized unit, another day with unorganized bullock transport, and another day in Supply work. The system prevails in camel corps of having a native officer from native regiments in command of two troops, and officers commanding camel corps speak highly of the system ; I cannot see why this system should not be applied to mule and pony transport units. The native officers would remain permanently in command of their two troops, and there would be no shifting from one corps to another ; once a native officer was posted to a unit, there he would remain and be always in command of his own two troops.

He would get to know his men and animals, and be able to establish good discipline and good working order in his own two troops.

To replace the Quartermaster-Sergeant I would have one native officer in charge of the Quartermaster's duties and also in charge of the details for duties (*i.e.*, such duties as are performed by the native Adjutant in a native regiment) with two Kote Duffadars under him, one for the Quartermaster's part of the work and the other for the remaining duties.

The present British warrant and non-commissioned officers are some of them good men, and I do not want to say a word against them, but many of them don't understand how to treat the native, especially the good class man that is now being enlisted, and don't know the language well. There are exceptions, and some few are all that can be desired; but from a general point of view, I think that the efficiency of units would be increased by the substitution of native officers for the British warrant and non-commissioned officers.

At the same time, if the British element is maintained, the least that can be done is to let a man join the Supply and Transport Corps for transport work and transport work only, to post a man to one unit where he should always remain while in the Supply and Transport Corps. He will then get to know his men and his animals and transport work generally. At present he is liable, as I said before, to be transferred from Supply to Transport and *vice versa*, sometimes with mules and sometimes with ponies, sometimes with one unit and sometimes with another. Can a man take a personal interest in any particular unit if this system is carried on. Can they even get to know their men or animals?

An order has just been issued by which a man, under certain conditions, gets higher staff pay with unorganized Transport and in supply work than with organized corps or cadres, a man being told that he is to go from one to the other as the finger of higher staff pay beckons him. Surely service with corps or cadres is more important than all, and why should not a warrant officer or non-commissioned officer get increases of staff pay according to length of service in a grade? This general post would be then avoided.

(4) The number of Lance Naicks can be decreased, but they should do merely supervising work.

At present a Kote Duffadar is in charge of the troop, a Naick in charge of each half troop, and a Lance Naick in charge of each section, a section in a draught corps being 5 men, including the Lance Naick, and in a pack corps 4, including the Lance Naick.

This gives 10 Lance Naicks per troop in a draught corps and 8 in a pack corps.

Each of these Lance Naicks has only 2 or 3 animals according as to whether he is in a draught or pack corps; he is therefore practically useless as a Section Commander, as he is continually about his own work. I would not therefore have the Lance Naicks in charge of animals at all, they would be a part of the actual supervising establishment, and if this were done, 4 Lance Naicks per troop would be quite sufficient.

More actual supervising, than at present exists, is required, more especially when on active service.

(5) I would arm all transport attendants with carbines. It seems to me that many opportunities occur on service when the transport attendants would have a chance of utilizing rifle fire, for defensive purposes only of course; and the fact of their being so armed would increase the defensive power of a convoy or baggage train, which are at present so helpless without large escorts, and would hence decrease the amount of escort required for baggage, etc, and increase the actual fighting portion. Anything which does this should be seriously considered. Only a very small amount of training is necessary, the present man enlisted in the Transport is of good fighting material, and with a little preliminary training and with a short annual course, he would, in all probability, become efficient in a very short time. All he wants to know is how to load, aim, adjust his sights, and judge distance roughly. The fact of an enemy, especially a savage enemy, knowing that the transport attendants were armed, would make them chary of trying to rush a convoy. Then, consider too, the enormous increases of defensive power when encamped and animals are picketted, for this reason only it might be considered.

(6) Officers Commanding units should purchase their own animals to fill existing vacancies, and Officers Commanding Cadres should mark down the animals they are to get on expansion and purchase them, taking this work out of the hands of the registration officers. I think it would tend to the purchase of a better stamp of animal than is at present provided for cadres and corps, certainly than at present bought by registration officers, which I have had personal experience of. If Officers Commanding units were allowed to purchase their own animals to fill existing vacancies in peace time, they would be very careful to buy nothing but what they considered to be really good and efficient and the work of the transport registration officers would be reduced. In fact if Officers Commanding Cadres were allowed to purchase and mark down their own animals to be got on expansion, the *raison d'être* of the registration officer, as far as mule and pony units were concerned, would be done away with, and the number of registration officers could be considerably reduced. The money so saved might go towards the provision of an extra officer for each cadre.

To do all this I would propose the following, which might cost Government a little more than at present, but to my mind, there would be no comparison as to preparedness for active service between the present state and the state that would exist if my suggestion were carried out.

Under existing rules the Officer Commanding a cadre is held responsible for purchasing animals on expansion, which have been marked down by registration officers. He only knows roughly the numbers so marked down in each district, and knows nothing else about them, nor has he in any way been responsible for marking them down; he may not even approve of the animals but would in the hurry and stress of expanding have to take anything the registration officer

shows him. He may not be able to get the animals registered, as some time may have elapsed since the last tour of the registration officer, and the animals then registered may have died, become unsound or have left the district, and there is no inducement, in Bengal anyhow, for an owner to register his animal, as he is paid no retaining fee. To remedy this, I would suggest that the registration of animals for cadres be taken out of the hands of registration officers and that an extra officer per cadre should be appointed, this would leave the Officer Commanding a cadre free to travel about constantly and register animals for expansion of his cadre; he would not only inspect them frequently, but would continually have the registers changed as animals became ineffective or unsound. To induce owners to register their animals and keep them fit and sound, an allowance should be granted to them, payable yearly in arrears, payment being conditional on the fitness of animals for active service. On expansion being ordered, the Officer Commanding knows exactly where his animals are and that they are fit for active service, and they could be collected in the least possible time. The Officer Commanding a Cadre could, as suggested above, also purchase animals for his peace complement to fill vacancies, but to be able to carry out all the above suggestions, another officer would be required to assist him, to command the cadre, train reservists, etc., in the absence of the Officer Commanding while registering, inspecting or purchasing his expansion animals.

(7) The Officer Commanding a Cadre should have everything absolutely ready at all times for expansion. The time allowed for the expansion of the cadre is 21 days. On the 22nd day after receipt of orders to expand, the expanded cadre is supposed to be ready to take the field. In this 21 days he has roughly to perform the following:—

- (a) Leave his Cadre and buy all his animals, varying from seven to eight hundred, required for expansion; this, as pointed out above, is under the present system, by no means a business which can be hurried over, and it is doubtful whether all the animals could be got together, purchased and despatched in that short time, though under the system suggested by me it could be easily done, as the Officer Commanding a Cadre himself knows exactly the place and condition of each animal.
- (b) Stuff saddle pads of animals required for expansion (roughly fourteen or fifteen hundred pads). These in peace are kept unstuffed, and the wool for stuffing is not kept in stores, but has to be arranged for by the Officer Commanding the Cadre. Now this amount is not procurable locally and, even if it was, would, in all probability, not be serviceable or satisfactory, so it has to be ordered from the woollen mills at Cawnpore or from some other equally large dépôt for wool. This would take time, and if all cadres were ordered to expand at once, probably the wool, in the large quantities required, would not be forthcoming, and then what use would an expanded cadre be with unstuffed saddles. Even if procurable at Cawnpore and such large dépôts, it would be some time before it could arrive,

and the stuffing of fifteen hundred saddle pads is a long business and might prevent the cadre being ready in the prescribed time. A stock of wool sufficient for all purposes and available for immediate issue should be kept in the stations where cadres are. Wool is cheap, and even though there may be a loss by the storage of this large quantity, the loss should be borne, rather than that delay in expansion of cadres should occur, on the rapid expansion of which vital interests may rest. What could be more cruel than to start an expanded cadre off on active service with saddles hurriedly stuffed with bad wool?

- (c) Call in carts which have been lent to corps in peace time, survey and repair them and fit them for mule and pony draught where necessary. In a cavalry cadre, 250 carts out of 300 are on loan outside the cadre, 200 to a pack corps and 50 for bullock draught. These 200 which have been with the corps will probably require thorough overhauling, the Officer Commanding Pack Corps to whom they have been lent does not have them on service, and therefore may or may not, the chances being that he would not be so careful to keep them in a thoroughly fit state for active service as the Officer Commanding the Cadre, who knows he has to take them on service with him would be.

The 50 which are in use for bullock draught have to be prepared for mule draught, as they have, when handed over for bullocks, been converted for bullock draught.

This is a long process, more especially if the fittings for their conversion are not with the cadre, which they are not at present.

- (d) Train animals, bought for expansion, that do not go in draught to draught work.
- (e) Call up all reservists and equip them.
- (f) All the details of promotions for expanded troops, of arrear reserve pay, advances of pay, issue of clothing, organisation in troops, shoeing animals, branding and writing up descriptive rolls of new animals and other innumerable details which have all to be thought out and arranged for.

The Officer Commanding the Cadre now has to leave his cadre immediately on receipt of expansion orders to purchase his animals, and leaves the cadre without an officer; surely the Officer Commanding is the very man to be on the spot to see to and arrange all the details of organisation at head-quarters. If the registration officers are still to remain, surely they are the men to purchase and despatch animals to cadres. If the Officer Commanding the Cadres, as suggested, marked down his own animals for expansion, and if another officer for each cadre were provided, all this difficulty would be removed.

If all the above has to be done in 21 days, it is absolutely necessary that everything should be in clockwork order, and that every little detail and possible contingency should be arranged, thought out and provided for beforehand.

(8) The organisation of a cadre should never be broken up for odd jobs here, there and everywhere as is frequently done at present, as is now the case in Sikkim, the peace establishment, or part of it, in both men and animals of cadres is utilized for duties which practically make the cadre incapable of expansion. For instance, there is in Sikkim a large number of the peace establishment of animals and men, and men have been sent over to South Africa on purchasing duty. Having before my mind always the contingency that the cadre may be ordered to expand at any time, and when so ordered, that it has to be ready on the 22nd day, it seems to me that if the peace establishment is ever separated from head-quarters, as is done at present, that the very existence of a cadre is gone, and that it is incapable of expansion. A large number of the Naicks, Lance Naicks, and nearly all the drivers of the peace establishment are noted down for promotion to Kote Duffadars, Naicks, and Lance Naicks, respectively to command troops, half troops and sections of troops, formed from newly purchased animals and manned by reservists. If a large, very large, number of these are away when expansion orders come, where are the non-commissioned ranks to be got from?

The *raison d'être* of having a peace establishment of men is to be able to get promotions immediately the cadre receives orders to expand, and to draft these newly promoted men into the newly formed troops. If non-commissioned officers are not forthcoming, how can the organization exist?

Hence it seems to me vital to the existence of a cadre that its establishment in peace should never be taken away so far as to render them practically useless if expansion is ordered.

The gear and material of a cadre is often issued and frequently not replaced for several months. Gear is also ordered to be issued on loan to registration officers purchasing animals for the different commands; this gear, etc., is on the books of the cadre, but is out with the purchasing officer. I know of a case in which nearly the whole of the expansion line gear of a cadre was ordered to be issued on loan to purchasing officers, despite the strong protests of the Officer Commanding.

If the cadre is ordered to expand, this gear has to be obtained from purchasing officers, probably half of it has become unserviceable, half of it may be lost. Anyhow it is probably spread all over the country with newly purchased animals, or with purchasing officers, and it would take a long time to get it all back. Meanwhile the Officer Commanding a Cadre requires his gear to bring in his own animals which he has to buy on expansion; it will not be forthcoming and hence there is enforced delay. When it is returned it has to be surveyed, to replace that which is unserviceable or lost, and serviceable gear has to be obtained on indents. Can a cadre be expected

to expand in 21 days or in anything like 21 days under these circumstances? Ought not a cadre which is an important unit in the present system, to be at all times and at any moment ready for active service, is not that the *raison d'être* of a cadre? And if these principles are not adhered to, and if it is for half a year, sometimes more, practically ineffective as a unit, I cannot see that the organized unit is any better than the unorganized. It may be tinkered up for active service, but it cannot be an effective unit, unless kept ready and complete at all times for mobilization. Callwell in his book of "Small Wars" states:—"It is an established canon of the art of war that the seizure of the initiative at the outset and its maintenance thenceforward is one of the best assured means of commanding success, the one nation that gets the start can dislocate the whole scheme of operations which has been, in theory, elaborated by the other".

James in his modern strategy states:—

"The offensive is the resource of the strong, rapidity is essential to it. The offensive is only possible when good organization ensures the rapidity necessary for carrying it."

What enables an army to make the first start, or what ensures the rapidity necessary for taking the initiative and the offensive, but a good system of transport?—Transport that can be got ready for movement at the shortest possible notice. Hence ought not every detail to be thought out, so that not a hitch may occur to prevent an army making the first start?

If one compares the present state of transport with the state that existed some five or six years ago, one sees what wonderful advances in organization have been carried out by the Supply and Transport Corps and very often under adverse circumstances, and now when the organization has been formed, it seems hard on the Supply and Transport Corps officers that command of transport units should be taken out of their hands and be given to regimental officers, while they are relegated in most cases to supply work. If Supply and Transport officers are not given command of transport units, how are Supply and Transport officers with transport experience to be found eventually for the higher posts connected with transport? Everyone knows, on service what a wonderful man, full of all manner of knowledge, is the Supply and Transport Corps Officer, and if such excellent men exist, should not every endeavour be made to meet their wishes, and there is no doubt what their wishes are on the subject; the most interesting part of their work has been taken away from them and thrown on to regimental officers.

JUNE 18TH—1815.

BY MAJOR G. F. MACMUNN, D.S.O., R.F.A.

Never a June comes round but quickens the memory of the great struggle fought out with the fury of the Frank, and the grim determination of Briton and Teuton, on that sultry summer's afternoon, eighty-nine years ago.

To those who drive out in June through the green suburbs of Brussels, and the town of Waterloo, to the little village of Mont St. Jean, the details of the great drama, come vividly enough, the wearied excitement of the "hundred days," the spread of the fiery cross through jaded France, the efforts of the Allies, the despatch from England of raw troops and scratch staffs to Belgium (for half the veterans were in America), the despair of the Duke at the inefficiency of his force, and his combination with the loyal Blücher to oppose Napoleon's expected gambit, will rapidly pass through the mind as one drives through the woods along the old paved *chaussée*.

The uncertainty regarding Napoleon's plans, the scattering of the Allies thus necessitated, Wellington's coolness and insouciance at the Duchess of Richmond's ball, carefully calculated to lull apprehension; Ziethen's cunning discovery of the French approach, the hurried concentration of the British, the defeat of the Prussians at Ligny at the first swing of the hammer, Wellington's desperate struggle for the great Namur *chaussée* at Quatre Bras, by which he hoped to march to their assistance, the bivouac of his troops in the mud and the standing corn, and his steady retreat to Waterloo to enable the Prussians to rejoin him, are they not written clear and often for all men to read who will?

Standing on the cross road on the great Charleroi *chaussée*, at the crest of the allied position, who cannot picture to himself the bivouac of the tired Allies,—British, Hanoverians and Dutch Belgians, on the night of the seventeenth, as they lay soaked by constant thunder showers, and weary of the incessant charges of Napoleon's cavalry? Or the pitiful struggle of wounded men stumbling through the mud and slush, past the worn out picquets which face the French half a mile away, whose sentries are the only waking souls in the sleeping armies save only the two restless commanders, who peer across at each other through the silent night into the small hours of the morning.

Then !...the *veille* on the eighteenth of June, the sodden troops, stretching their aching limbs and trying to cook a breakfast,—Staff Officers and Generals busy telling off Brigades to their portion of the line, and arranging the construction of defences. Down below on the right stood, as it stands to this day, the Chateau Hougomont, where red-coated guardsmen swarm like ants through the heat

haze, busy loopholing the walls of the orchard and chateau. In the centre a corps of the German Legion does the same to the tiny farm of the La Haye Sante, and away on the left the Prince of Saxe Weimar is fortifying more scattered farms. In the intervals between the farms and just behind the crest of a rise, the troops are forming up; Maitland's and Byng's Guards, Halket's brigade of the Line, Pack's, Kempt's, Best's and Byland's brigades, Ompteda's Hanoverians and Keilmannsegg's Germans, cheery and confident every man. Behind the first line wait the cavalry, grazing their horses on the standing corn, Vivian's and Vandeleur's Light Brigades far on the left, while further down the reverse slope of the Allied position are a few reserve brigades and artillery waiting to take their place in the firing line.

All along the British front the ripening corn waves in the morning sun, and as the haze lifts, Napoleon's great pageant unrolls before the eyes of the expectant Allies. Division piled on division, brigade on brigade, guardsman and voltigeur, chasseur and cuirassier, in one magnificent panorama, one scant half-mile away, while as the bands and the eagles wave, Napoleon in his famous battle dress, the white breeches and green coat of Austerlitz, rides slowly along the front of his veteran troops, who cheer as they never cheered before...and all the while the Anglo-German bulldogs, never a whit dismayed for all the French crowing, watch them stolidly from among the corn on the ridge of Mont St. Jean. Truly the memory of such a scene must stir the heart of man for all time.

Away behind the Allies stretched the great paved *chaussée* to Brussels, through the tall forest of Soignies, already crowded with the retreating impedimenta that collects round a cantoned army, and congested with reinforcements pushing to the front for all they are worth. Backwards along the *chaussée* streamed the baggage of the army, anxious officers' wives on horses led by aged batmen, maimed and wounded men from Quatre Bras, highlanders, linesmen, Belgians and Brunswickers, a few Prussian stragglers from Ligny, also many skulkers, men and non-commissioned officers, and, alas, here and there even an officer, in whom the strain of the 16th had destroyed all feeling save the instinct of self-preservation...a crowd to which many were to be added ere night-fall. Lumbering bullock carts, empty ammunition waggons, sick horses, broken cannon, improvised ambulances, weary soldiers' wives, now and again one dropping out overtaken by her trouble to lie in the green forest, prince and pauper, dairy-maid and duchess, private's wife and general's lady, all hurrying along the *chaussées* to clear the roads and escape the French.

Eleven o'clock on that steaming morning, the Emperor's pageant is over this half hour, and still the battle hangs fire. Sturdy old Blucher has written with the stiffest of upper lips, to say that he is coming to help his comrades, not merely with two of his army corps, but "Mit mine whole army, so", despite the beating of the Sixteenth,...and right well he kept his promise. Even now Wellington has heard of the first Prussian patrols appearing, by Frischermont, and swears that every man shall die where he stands, rather than yield one yard to the curse of Europe.

Six hundred yards in front, Ney is marshalling his vast array of guns.....the British doze stolidly by their arms, their drenched clothes drying in the sun ; the Hanoverians smoke and spit, and the atmosphere shimmers in the noonday heat.

Suddenly from that vast battery east of the Charleroi road, the smoke rolls forth with a deafening roar, the round shot hum over head, and the huge French columns surge upwards, Foy's against Hougomont, and D'Erlon's against the British left in six solid masses.....the battle of Waterloo has begun.....to be fought out as battles have rarely been fought before and never since, till the rose grey of that summer evening.

The fight has been often enough described in some of the finest English ever written, described too by men who stood in the mangled squares that, reckless and stubborn to the end, defied the flower of Kellerman's cavalry, or who rode in the train of the Duke wherever the struggle was hottest. To re-sing their sagas here is impossible, nor can justice be done in a page, or for the matter of that, in a hundred pages.

Of the fierce defence of Hougomont by the Guards, of the repulse of D'Erlon's masses by the thin red line.....of the wild charge of Ponsonby's Union Brigade, and their annihilation by Jacquinet's lancers on the French side of Ney's vast battery.....of the furious inroad of thousands of horse among the squares on the Allied rightof the despairing advance of the Imperial Guard, of Colborne's charge with the 52nd, of the dash of our guards, of the wail of bitter despair and humiliation from the beaten French Guard, and Ney's reckless gallantry and wild challenge to them to "come and see a Marshal of France die ".....are not they all written of again and again by Siborne and Kincaid and many another, to whom the oft told tale always brought fire and never came amiss.

Then at dusk, Wellington, stern and cool as ever, his mingled grief and surging exaltation buried deep beneath the surface, ordering the advance of all his wearied line, drives the fleeing mass to Planchenoit, and on to Rossomé, where the Prussians fall relentlessly on their flank, and pursue them with horse and foot, with bugle and drum, far into the night and on to the next dawn, while the tired English and Hanoverians dropped where they halted and slept, then and there. When men could march no more, cunning old Marshal Blucher must needs mount his drummers and pursue the French with tap of drum alone, so that their fear never left them and they fled on before the drummers the whole night through, and scattered beyond all chance of rallying, throughout the country side.

On the length and breadth of that blood-stained field, from Mont St. Jean to Rossomé, the Allies bivouacked as best they could, among the dead and dying and all the horrors of that stricken field, while the Duke rode back to his quarters, to write his despatches and to count his loss, when even his iron nerve broke down so that he wept, men say, for his brave soldiers and gallant friends.

THE EMPLOYMENT OF INFANTRY IN THE DEFENCE OF COALING STATIONS.

BY MAJOR H. F. LOCH, 1ST BRAHMANS.

The coaling stations, as everybody knows, are certain harbours which Great Britain has occupied, at convenient distances along all the main sea trade-routes. In them coal and naval stores are collected in time of peace, and many of them have been, or are being, provided with docks, dockyards, and workshops for carrying out extensive repairs to ships. These ports, in time of war, become important naval bases, and are also harbours of refuge for British merchantmen pursued by hostile cruisers. In these days of steam, the radius of action of a ship or fleet is limited by the capacity of the coal bunkers, and it is only by having these coaling stations, these *points d'appui* scattered all over the globe, Great Britain is able to maintain her fleets in far eastern and other distant waters. It is hardly possible to exaggerate their importance to a great naval power with world-wide interests, for the coal supply of a fleet is its life. The want of such *points d'appui*, will assuredly be most acutely felt by Russia should she send her Baltic fleet to Japanese waters.

A discussion of the probabilities of an attack being made on any British coaling station, though interesting, is outside the scope of this paper. The following quotation gives the general conditions under which attack is probable and possible :—“ Our Navy is necessarily so scattered over the world that we cannot be certain, that at some time or other we may not be in a minority in some quarter of the globe ; our fleet may have to withdraw, or may be beaten by superior forces and for the time being, possibly some weeks or months, an enemy may be in undisputed temporary command of that part of the sea.

“ It is scarcely likely that such an opportunity would be missed of capturing or destroying our coal and stores, and a raiding attack would be organised, which might be of considerable strength and would tax the garrison to its utmost to defeat or keep off until relieved.

“ The permanent capture and occupation of the place would scarcely be undertaken so long as there was any probability of a relieving force from home being sent out.”

From the above we gather, that except under conditions which practically mean the *debacle* of the British Empire, the only attacks to which the coaling stations will be liable are raids. A raid on a fortified harbour has been defined as, “ A sudden attempt to penetrate

the defences, with a view to the destruction of shipping in the harbour, or under construction, docks, coal, and stores." The main object of a raid on a coaling station will therefore be to destroy the coal, naval stores, docks, workshops, &c., thus rendering it useless, at least for a time, as a naval base.

The passage quoted above contemplates the possibility of the raiding force having the local command of the sea for weeks and months, but unless Great Britain is at her last gasp, it requires a stretch of the imagination to believe this possible, and if such happened to be the case, it would admit of more deliberate attack than that we usually associate with a raid. The general idea of a raid is that the attack is sudden, the capture, occupation and destruction of the place and its stores being carried out as quickly as possible; the raiding force withdrawing before it can be effectively opposed and before it can be attacked by a pursuing force. In these days of telegraphs and steam, it is much more likely that the time available for the undisturbed prosecution of a raid will be limited to days.

The coal supply of the ships will also limit the time available. If the raid is successful, the bunkers can be refilled from the coal in the port, but if unsuccessful and the resistance is protracted, the raiding ships must withdraw when their coal is reduced to the minimum required to take them back to their nearest coaling port.

Now-a-days too, the news of the appearance of a hostile squadron before a port would be telegraphed to other British ports, and ships would be hurried to the relief; and it would be possible for all available British ships-of-war (capable of steaming over 18 knots), within a radius of 4 to 5,000 miles, to reach the threatened port within 10 days. Taking all things into consideration, it seems that the raiding squadron can only count on a period of about 10 days in which to overcome the opposition of the garrison, and effectually destroy the coal and stores, &c. If circumstances combine to favour the raiders they may count on having a few more days at their disposal, and *vice versa* if the conditions are adverse.

As regards the strength of the forces likely to be employed on these raids, no estimates of any value can be formed. The history of the naval wars of a century ago shows that single ships and even squadrons and fleets were able to escape from blockaded ports, and could combine for distant expeditions. In 1796, a large French fleet convoying transports, carrying 15,000 troops destined for the invasion of Ireland, sailed from Brest without being observed, although that port was watched by 15 British ships. In the early part of 1805, a fleet sailed from Rochefort to the West Indies, made an attack on the island of Dominica, and regained port without being encountered by the British. This fleet was able to disembark on that island 4,000 men for land operations. Later in the same year, the famous victory of Trafalgar brought to a close the cruise of the combined French and Spanish fleets, which had successfully escaped from Toulon and Cadiz. These instances serve to show, that in spite of a blockade, raids may be made by ships singly or combined. It may be objected that these instances happened before the days

of steam, and that escape from or evasion of a blockade is more difficult now. This does not appear to be the case. Such modern experience as we have, tends to show that it is as easy to evade a blockade now as formerly. For instance, at the naval manœuvres in the Mediterranean a year or two ago, a fleet under the command of Prince Louis of Battenberg was able to escape from a closely blockaded port during the night. Even so lately as April 1904, Russian cruisers were able to leave Vladivostock and regain that port unharmed, 'after destroying some Japanese shipping and a transport, having passed through the Japanese fleet of 10 vessels in a fog.

We may assume, therefore, that raids will be made by any number of ships, from single cruisers capable of disembarking 2 to 300 men as a land force, to a squadron capable of disembarking 4,000 men (as in the attack on Dominica), or even an expedition with a force equipped for land operations of greater strength.

Time being a chief factor to the success of the raid, it will to a certain extent determine the method of attack, and the point of attack, which will usually be as near the main object of the raid as possible.

As the *coup de main*, if successful, is likely to produce the greatest results in the shortest time, this will, in most cases be the method of attack first attempted.

Bombardment may be resorted to, and will probably be used to support an attack by a landing party. It will rarely be used alone, as the results of a bombardment are so uncertain, and if used against modern defences, so unlikely to produce the desired result of causing the place to capitulate, that naval commanders will not be willing to make use of it to any great extent, as there is always the possibility, that after expending a large quantity of ammunition in a bombardment the raiding ships may have to encounter, with depleted magazines, a relieving force. A bombardment will probably be resorted to if the defences are old-fashioned masonry forts incapable of resisting the attack of the heavy guns carried by modern ships, or if the harbour is so much exposed that the damage likely to be done by a bombardment, such as the destruction and setting on fire the coal, workshops, etc., would be so serious as to justify the expenditure of the ammunition.

The third mode of attack is by a force landing for the attack of the port and its defences on the landward sides. This attack will probably be combined with a bombardment and an attack on the sea-front. If the squadron has been especially organised for the raid, it will carry with it a force organised for operations on land, equipped with field guns and perhaps with land transport. The probability, however, seems to be that the raid will be made by ships of war only, and the landing parties, which are the part of the attack with which the infantry of the defence are chiefly concerned, will be seamen and marines from the ships, and will have no special armament for land fighting, except such field or boat's guns, pom-poms, etc., as can be landed from the ships, and which will have to be dragged by the men. Land transport not being available, operations at a distance from the coast or wide turning movements are practically impossible, and the advance will be restricted to the vicinity of the coast, in order that supplies may

be drawn from the ships, and also to permit of the ships supporting the movement by their fire.

There is no doubt that an active defence will endeavour to oppose all attempts at landing, for it is whilst the boats are approaching the shore they form an excellent target and are most vulnerable, as they are crowded with men who cannot reply to the fire from the shore, and are unsupported, at a most critical period, by the fire of the ships covering the landing, which must cease as they near the land. But the initiative lies with the ships; they can choose their own time and place, and will generally succeed in disembarking the force unopposed. Thus, at Havanna in 1762, while the main body of the fleet demonstrated against the defences of the harbour, the British troops landed without opposition, on Barnacao beach seven miles from the town. As there were, at the time, about 8,000 troops in the town, an energetic commander should have been able to oppose a landing made at such a short distance from it. When Mauritius was captured in 1810, four frigates blockaded the chief port, Port Louis, while the troops effected a landing at Grande Baie nearly 15 miles away. We conclude therefore, that the distance of the object of attack from the place of landing was one reason why a landing was generally unopposed. Another reason, no doubt, was that the threat of a direct attack on the defences of the harbour by some of the ships, whilst others attempted to land troops at various points on the coast, sufficed to keep the defenders within their forts, and distracted their attention from the actual place of landing. Further, a want of enterprise, a want of mobility, a want of communications, and the tactics of those days, compelled the garrison to make a purely passive defence, or at most, permitted outside active operations in the immediate vicinity, *i.e.*, generally within cannon shot of the defences.

When, for any reason, it was necessary to force a landing in the face of opposition, it was not always successful, and even when successful the assailants incurred heavy losses. The first attempt of the British in 1761, to land on Belleisle was repulsed by the French with a loss of 300 men. In 1801, a British force under Sir Ralph Abercrombie landed in Aboukir Bay. The landing although opposed by 2,000 French troops was successful, but cost the British 650 in killed. We see from these instances, that in those days, when the range of cannon was some 1,200 yards and musketry fire was slow and barely effective over 200 yards, an attempt to land in the face of opposition was hazardous and costly. It is likely to be much more so now. The magazine rifle, machine and quick-firing guns are able to bring the attacking boats under fire at much greater ranges than formerly, whilst the intensity of the fire, that can be brought on them during the last 4 or 500 yards before they reach the shore, is so great, it seems improbable that anything could live through it. At any rate, few commanders would risk such an attack by day, and if opposition is expected, the assailants will endeavour to secure their landing by surprise, under cover of darkness, or at such a distance from the place that the defenders will be unable to reach it in time to oppose the landing.

The second attack on Belleisle (1761) is a good illustration of the method of attack usually adopted to effect a landing. Several of the men-of-war lay off the town and castle, which was the chief stronghold of the island, and threatened it. Some ships were sent to make a feint at landing near Sauzon, in the north-east of the island, whilst the real landing party proceeded to Port de Andro in the south of the island and effected a landing there. These dispositions prevented reinforcements being sent from Sauzon and the castle to oppose the real attack.

This seems to have been the general form of attack made by a fleet on a defended harbour, and no doubt an attack on a coaling station would now be made on much the same lines. The arrangements for the defence should therefore be made to meet such an attack. If these arrangements are good, they should be able to meet the attack in whatever other form, or from whatever other direction, it may come, proper vigilance only being required to guard against surprise and night attacks.

Having reviewed the probable forces and methods of attack, we now turn to the defence.

The navy is of course the first line of defence of a coaling station ; but the condition for a raid to be possible is that this first line of defence, by defeat, stratagem or other cause, is temporarily non-existent. To be of any use for the protection of the coal, stores, workshops, shipping etc., during the absence of the navy, the coaling station must be provided with a second line of defence, *i.e.*, it must be sufficiently fortified and garrisoned to resist a serious attack from considerable forces. This second line of defence consists of two distinct parts, (1) the defences of the sea-front, (2) the land defences.

The defences of the sea-front will usually consist of closed forts or earth-works, armed with heavy guns and howitzers to repel the attack of ships of war, and quick-firing guns to repel boat attacks, assisted by electric search-lights for night use. The channel into the harbour will be closed by a mine-field, or in the case of a harbour with a narrow entrance, it may be closed by a boom. But, with these defences we are not concerned, except as regards the number of infantry which must be detailed to assist in their defence. This will depend on the type of the defence works. Whether they are modern works or old fashioned masonry forts ; whether the defences are scattered or not, and if they are, whether all landing places between and near them are protected by their fire. If the works are modern, they will most probably be shallow works with little or no gorge protection, except, perhaps, an unclimbable fence or a wire entanglement, the defence of their rear faces being secured by infantry acting outside them. But, as it is possible, that a small party of the enemy might succeed in landing unobserved, and in destroying a quick-firing gun or search light emplacement before help could arrive, it may be necessary, especially where the emplacements are in isolated positions, to add some infantry to protect the men working the guns and search-lights from a sudden attack in rear. If the works are scattered and the coast permits of easy landing between them, some infantry must be employed, especially at night, to watch the landing places

FIG. 1.

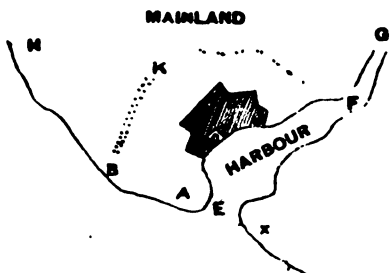


FIG. 2.

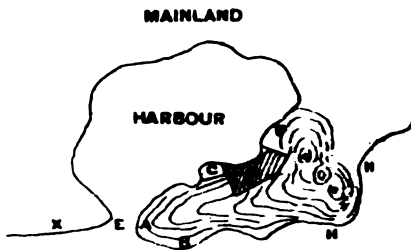


FIG. 3.
MAINLAND

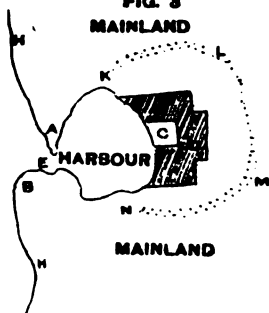


FIG. 4. MAINLAND

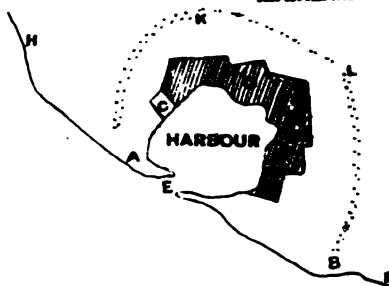


FIG. 5.

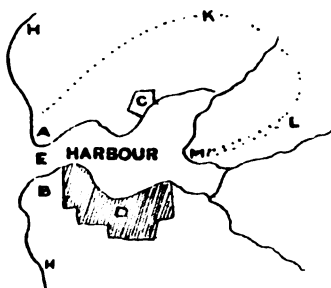


FIG. 6.
MAINLAND

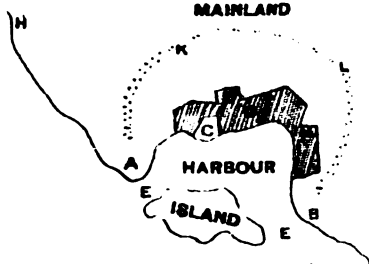


FIG. 7.

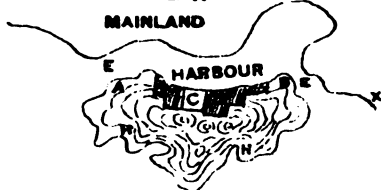
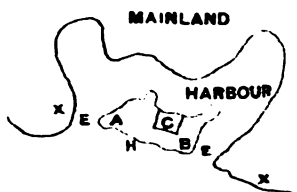


FIG. 8.



A.—THE SEA-FRONT DEFENCES

B.—DITTO

C.—THE MINE FIELD.

H. H.—THE PROBABLE POINTS NEAR WHICH A LANDING WILL BE MADE

..... INDICATES THE APPROXIMATE MAIN LINE OF THE DEFENCE.

Q.—THE COAL-REDS, STORES

DOCK & WORKSHOPS &c.

D.—THE TOWN.

and to resist all attempts at landing. In the case of the defences being old masonry forts, constructed for an all round defence, a somewhat greater number of infantry may have to be detailed for their garrison. But in all cases the number of infantry detailed to assist in the passive defence of the sea-front, must be reduced to a minimum, as every available man should be kept free for independent action outside the fixed defences. The actual number to be told off to the sea-front defences can only be decided on the spot, and must depend on the local conditions in each case.

The attached diagrams are rough types of various harbours, which will help us to determine the possible points of attack and the best dispositions for defence.

Fig. 1. An estuary, with the harbour and its defences on one bank. Terrain—a low-lying shore offering no particular advantages to the attack or the defence. The ground rises slightly from the shore inland. Between A. and B. there is a good open beach suitable for a landing. Beyond B. the coast becomes rocky and broken, with no place for landing until H. is reached. C. and D. may, or may not, be beyond the reach of bombardment from the ships, but this is immaterial, as it does not affect the choice of a landing place, which we are now considering.

The attack on this coaling station will, without doubt, be directed against the works at A. and B. and the shore between them. If the attack fails, a party will be landed at some convenient spot at or near H. to attack by land. More often than not, these two attacks will be combined, in order to prevent the defenders from concentrating the whole of their forces on the one attack. It is obvious, that to land a party at X. is useless, for nothing can be gained by it. To reach C., the main objective of the attack, the party would have to march several miles inland, before the obstacle, the estuary F. G. could be crossed. The advance could not be supported by the fire of the ships, and time would be given to the defenders to oppose the crossing.

A reasonable disposition of the garrison to meet these attacks will be to divide it into three sections, allotting an area for defence to each section. The sections will be of variable strength, according to the possibility of their having to sustain an attack. The remainder of the infantry will be concentrated in a central position to act as a general reserve.

1st Section—to hold the line A. to B.—will consist of the infantry told off to garrison the defences A. and B. (in addition to the artillery and engineers who form the standing garrison of these works), and to watch the shore between them. It should have a local reserve to oppose attempts at landing between A. and B.

The *2nd Section* will be roughly along the line B. K. It will consist of a first line and its supports holding a position which has been previously selected and strengthened by field works. The left flank will rest on, or be supported by, the fixed defence B. The position should command all the approaches from H., and must be held strongly, as it is probable that the main attack by land will be made upon it. The section should have its own local reserve. If the

ground is favourable, a second and third position should be prepared, in case the first line is forced to fall back. If the distance B. K. is excessive the section may have to be sub-divided, each part having its own local reserve.

The *3rd section* will hold the line K. F. This line is little exposed to attack, and a thin outpost line watching the approaches, appears to be all that is necessary. For a force advancing from H. and attempting to attack this section, exposes its flank to the troops holding the line B. K. and runs the risk of being cut off from its boats.

The *general reserve* will probably be stationed between B. and C. so as to be available for the immediate support of the 1st and 2nd sections, on which the brunt of the attack is likely to fall, and in this case it might be possible to dispense with the local reserve for the section A. B. The reserve might be concentrated near K. as a support to that flank of the line B. K. From there it could fall on the left flank of any force committed to a frontal attack on B. K., but in this position it would not be so conveniently situated to support the 1st section.

Fig. 2. A bay protected by a peninsula. Terrain—a peninsula of limited extent, with high rocky hills. F. G., cutting it off from the mainland, to which it is otherwise joined by a low sandy isthmus. The spurs from these hills run down and form the peninsula, which is high and rocky, and gives good protection to C. and D. against bombardment. For the reasons given above (Fig. 1) the enemy will not land at X. A landing may be made at H. or H¹. If it is made at H. the enemy must force a passage through the hills, which can only be crossed by three or four regular roads and paths leading over them. It therefore seems probable that an attempt will be made to land between B. and G., combined with an attack on the defences A. B.

The infantry of the defence may, therefore, be divided into three sections and a general reserve. The *1st section* will be the infantry for the garrison of the fixed defences A. B. The *2nd section* will be from B. to G. The coast line has to be watched between these points; and as a serious attack will, most likely, be made on this section all landing places must be held in strength, and supported by a section reserve. The *3rd section* will be the line of the hills G. F. These hills can only be crossed by the regular roads. Assuming that the passes through which these roads run, have been fortified in time of peace, it will be sufficient to detail strong parties to garrison the works. The general reserve can be held in readiness near C. to act as required.

Fig. 3. A bay, entered by a narrow channel; coral reefs prevent ships approaching within a mile of the shore except by the one channel. Terrain—High hills, 1,500 feet high, rise some three miles inland, the spurs from which run down and enclose the harbour. The main roads run between the hills and the sea-coast. C. and D. are too distant from the coast to be liable to bombardment.

It seems immaterial to the attack whether a landing is effected between A. and H. or between B. and H¹. A feint will probably be made in one or the other direction, and the actual point of landing will be determined by the facilities which the shore offers for a land-

ing, and by success in securing the landing place. The attack may, therefore, with equal probability be expected from either direction.

The defence can again be divided into three sections. The *1st section* A. K. L. furnishes the infantry garrison for the works at A., which form a support for the left flank of that line. The *2nd section*, L. M. will be weakly held by outposts or detachments guarding the few passes leading through the hills. The *3rd section*, M. N. B. provides the garrison for the work at B., which supports the right flank of this position. The 1st and 2nd sections must be strongly held and provided with local reserves. The remarks made on the 2nd section Fig. 1 apply equally here. The *general reserve* will take up a central position in, or in rear of, the town D. so as to act in whichever direction the attack may develop. If the attack is made from both directions simultaneously, the defenders must endeavour to hold one party in check, whilst the full force of the reserve is concentrated to crush the other party, returning to oppose the first party as soon as the other has been defeated.

Fig. 4. This harbour is partly artificial, *i.e.*, protected by breakwaters. C. and D. are much exposed and liable to bombardment. Terrain—a long and exposed beach on the side towards B. The coast line generally presents no great difficulties to a landing on any part of it, in calm weather. The country is open and cultivated, with no special advantages for the defence. The most probable point at which the enemy would try to land would be near H., because of its proximity to C.; but a landing may perhaps be more conveniently effected along the stretch of shore E. B. H¹.

To meet possible attacks the garrison should be divided into four sections. The *1st section* A. to K. furnishes the garrison for A. and rests its left flank on this work. The *2nd section* K. to L. will be a thin outpost line. The *3rd section* will be from L. to B. its right flank protected by the work at B. The *4th section*, B. to E., will furnish the garrison for B. and will guard the open beach B. E. The 1st, 3rd and 4th sections being most liable to attack, will have to be strongly held. The remarks on sections 1 and 2, Fig. 1, apply to them. The general reserve will be in a central position, and previous remarks apply to it.

Fig. 5. A harbour with a narrow entrance, defended by works on high ground at its mouth. The nearest landing-places are at H. and H¹. Terrain—a long ramified inlet enclosed by heights of moderate elevation, giving good positions for defence from attacks by land. As before, the enemy may effect a landing at H. or H¹. The attempt will probably be made to land near H. because of its proximity to C.

The defence may be divided into two or more sections and a general reserve, according to the ground. The *1st section* provides the infantry garrison for A., and defends the line A. K. The *2nd section*, K. L. will usually be an outpost line. The *3rd section* will be the line L. M. The 1st and 3rd sections will be held in the greatest strength, see the remarks on section 2, Fig. 1. The *general reserve* will be concentrated near C.

In this case C. and D. are not located together. C. being the chief objective of the attack, the arrangements of the defence must be

made for its special protection. The capture of the town D. will give the enemy no advantage, so its defence may be neglected. The work at B. should be prepared and garrisoned for an all round defence. If it is attacked the general reserve would attack the enemy in flank and rear. Should the ground offer a position favourable to defence between K. and C. the perimeter may be reduced, and the defence divided into only two sections.

Fig. 6. A harbour protected by an island, and entered by two channels, C. and D. are protected by the island from bombardment. Terrain—much the same as for Fig. 3.; high hills on the landward side throw off spurs which enclose the harbour, and give good positions for defence. The main roads are along the coast. In this case the attackers must land either near H. or near H¹. They can gain nothing by landing on the island. Dispositions for defence, as already detailed for Fig. 3, should be made.

It has been assumed that the harbours in Figs. 3, 4, 5 and 6 are on the main land, and cannot be directly attacked from the landward side. If however, they are situated on islands so small that the enemy landing on the far side of the island can attack that side direct, then the sections L. M, (Fig. 3) and K. L. (Figs. 4, 5, 6) must be prepared for defence, and the force holding them must be strengthened.

Fig. 7. This harbour is on a small island, and is entered by two channels separating the island from the mainland. The defences at A. and B. and the mine-field E. secure the entrances. C. and D. cannot be bombarded. Terrain—The centre of the island rises in rocky hills to 1,200 feet in height. A road runs round the island, and one or two cross roads connect it with the town through the hills. The coast line is much indented, and there are several landing places on the south coast. The enemy having effected a landing anywhere near H. or H¹, must advance on the harbour either by the coast road, passing A. or B., or by the roads through the hills. The defence can therefore be divided into three sections. The *1st* and *3rd* sections to hold the works A. and B. respectively, and defensive positions in their vicinity, between the shore and the hills which would bar any advance by the coast road. The *2nd* section will hold the passes through the hills. The *general reserve* will be in a central position near C. The island being small it might be possible for the defenders to reach the south coast in time to oppose the landing. This should be done.

Fig. 8. This is much the case as in Fig. 7. The island is smaller, and the positions of the works at A. and B. will limit the attack to a landing between these points. The infantry of the garrison may therefore be concentrated between A. and B. in order to drive back all attempts at landing.

It is obvious, that in both Figs. 7, and 8, the enemy can gain nothing by landing at X, on the mainland.

One more point, in considering the dispositions of the defence as outlined above, is the question of a guard for the coal-yards, workshops, stores and docks, etc., the destruction of which will be the main object of the attack. These places may, or may not, be located together, but in either case they occupy a considerable area, and it

would not be possible to allot an adequate garrison for their protection without unduly weakening the general reserve. Besides, in most cases, although protected by a wall or some other obstacle, they offer no facilities for defence, surrounded as they not unfrequently are by the town which has grown up around them, not always leaving sufficient open space round them for their defence, and to give a clear field of fire. The defence of these places will therefore be best secured by the action of the general reserve outside them; but, as it is possible that the coal, workshops, or stores might be destroyed by treachery, or that a small party of the enemy might succeed in getting into and setting fire to them, it would not be advisable to leave them without some protection. A small force should therefore be stationed in them to guard their gates and to furnish patrols. If there is a local volunteer corps, this duty might well be undertaken by it, leaving the regular troops free for employment with the reserve.

As regards the defence of the landward side, *i.e.*, the side least liable to be attacked, it may be considered a waste of strength to hold it even with outposts. In Fig. 3, and similarly in other figures, it is obvious that any force advancing from H. or H¹, to attack the side L. M. exposes its flank to the troops holding the sections K. L. and M. N., and runs the risk of being cut off from its boats. This may be considered a sufficient defence for the side L. M., but the chances of war must be guarded against. An unguarded path up a difficult cliff led to the fall of Quebec, and a similar want of precaution might lead to these defences being turned by an enterprising enemy. The approaches on that side must therefore be watched, and if a saving in the number of men employed on this duty can be effected thereby, a system of patrols might be used instead of regular outposts.

As the infantry garrisons of our coaling stations usually consist of three battalions or less, the chief objection to the disposal of the defending force, as proposed above, is the extent of front to be defended, compared with the strength of the troops available. In the diagrams it has been assumed that the coal, workshops, stores, docks, etc., are either in the same enclosure, or so close together that they may be regarded as one. This, however, will not always be the case. They may be some distance apart, and in different parts of the harbour and town, and as the town has grown up round them, unless the plan of defence is extended to include both them and the town within the defended area, arrangements must be made to defend each separately. Positions outside the town must therefore be occupied. Under favourable circumstances, as in Fig. 5, where the coal, stores, etc., are located together, and are separated from the town D., it will be possible, especially if the ground be favourable, to concentrate the defence and reduce the length of front to be defended.

The range of modern arms permits of a much greater extension of the defence than formerly, and provided there is a clear field of fire, a small force entrenched can hold a much more extended position than used to be the case. We have only to look at the Boer war to see how positions of great extent were held by weak forces. The Boer position at Magersfontein, and the sieges of Kimberley and Mafeking are prominent examples. No attempt can be made here

to define the limit, or the extent, of the positions to be occupied. The choice of the position, its extent, and the works to be made, will depend on the nature of the ground.

Modern weapons and modern war. If we accept the axiom that, "without the aid of artillery it is impossible

I. S. Bloch, page 17. to drive infantry, even infantry considerably weaker in numbers, out of a fortified position," the occupation of such extended positions, as suggested, will not be attended by undue risk, because the chances are, that the attack will be made by infantry unsupported by artillery.

Taking into consideration the smallness of the garrison, it may be suggested that the defenders should confine themselves to the sea-front defences, and to a close defence of the main objective of the attack, *viz.*, C. The only way in which C. can be defended, except as suggested above, is to fortify and garrison it. To such a defence there are many objections, some of which have already been alluded to. (1) If the coal, workshops, etc., are not located together, a garrison must be provided for each place. This disposition would be unsound, as it would split the garrison into small parties, incapable of rendering mutual support, and liable to be beaten in detail. (2) If, as assumed in the diagrams, these places are located together, they occupy a considerable area, and to garrison them adequately would absorb the greater part of the infantry, leaving none, or at best a very insufficient force, available for an active defence. (3) The sea-front defences are dependent on the infantry of the garrison for their defence from attacks by land; and if the greater part of it is required for the passive defence of C., it would be possible for the enemy to contain the garrison of C. with a small force, whilst all his forces were concentrated for a combined attack, by sea and land, on the sea-front defences, with every prospect of a speedy and successful result. The sea defences once captured, the mine-field, controlled as it generally is from these defences, ceases to be a danger, and the enemy's ships can enter the harbour without opposition. The capture and destruction of C. would follow as a matter of course. (4) As already stated, C. is generally on low-lying ground, is surrounded by the town, and offers no facilities for defence.

From what has been written above, we may conclude that for the land defence of a coaling station an all-round defence will rarely be required, and that the best general scheme for defence will be to divide the area to be defended into sections, a portion of the garrison being detailed for the defence of each section; the remainder being retained as a general reserve to act as required, and to crush the enemy in detail should he attack from different directions. The interior lines on which the reserve can move will permit of this being done. Defensive positions must be selected for each section and prepared for defence, each section being supported by a local reserve. These local reserves will be available to oppose a landing, should one be attempted in the neighbourhood of the selected positions, and as before stated, a landing party is most vulnerable whilst in the boats approaching the shore. The defenders ought, therefore, always to endeavour to meet and drive off a landing party before it can land. This can only be done if the landing place is close to the defenders'

position, or at some place which they can reach before the boats. The slow pace at which infantry can move, limits the radius within which it is possible for it to oppose a landing. If mounted infantry were available, or if the infantry could be carried in fast moving carriages or traps, the radius of their action would be materially increased. Even then, the possibility of opposing a landing would be very problematical, because the ships can move to the selected landing-place by night, and even if they move there by day, the time required to secure the landing is so short, that unless the defending party can move rapidly along, near the shore, keeping up with the ships, it could not arrive in time to oppose the landing.

It is not within the scope of this paper to go into the detail regarding the selection of the positions and their preparation for defence. In the "Principles of Land Defence" by Captain Thuillier, R. E., these details are considered and fully dealt with, and those who wish to enter more fully into this part of the subject can refer to that book. The main points to be attended to, are:—(1) Look-out stations should be established from which all movements of ships along the coast can be observed. These stations to be connected with the central Head Quarters, and with the sections of the defence, by telephone or visual signalling. (2) Communications must be made from the position selected for the central reserve to the sections, and also lateral communications in rear of the positions. (3) The field of fire must be cleared. (4) As the attack will probably be made by infantry only, the works for the defence need only be infantry redoubts of low profile and trenches, the intervals between the works being strengthened by obstacles. (5) Broken ground, and ground affording cover to the advance of the enemy must be especially attended to. (6) Arrangements must be made for the firing lines to have an ample supply of ammunition. (7) If there is any moveable armament available, positions should be selected for it, and emplacements made. A few pom-poms and machine guns should be allotted to each section, but guns of heavier calibre, such as field guns, should be kept with the reserve to be employed as the attack develops. (8) A scheme should be drawn up for the defence of each coaling station, in which all the particulars of the positions selected, and the details of the works proposed should be entered. Those works which require time to carry out, such as the opening of communications, etc., should be taken in hand and completed in peace time.

Before closing this paper it will be as well to notice certain points which may assist the defence in estimating the probable strength and direction of the attack. The enemy has the advantage of being able to select his own time and point of attack, but he cannot hide the number and size of his ships, and these will give a fair indication to the defenders of the probable strength of the landing parties by which the attack can be made. There are also certain physical and climatic conditions which may limit the enemy's choice of a landing-place. These should be known to the defenders, as they may be a useful indication of the point from which the main attack may be expected. For instance, cliffs, rocks, coral reefs, shoals, etc., deny portions of the coast to landing parties, and even prevent boats

approaching the shore. On certain parts of the coast a heavy surf, the state of the tide, prevailing winds, the monsoon, etc., forbid disembarkation at certain times and seasons. It may therefore be possible for the defence, according to the season of the year at which the attack is made, to make a fairly correct forecast of the probable point of landing. The movements of the enemy's ships, the direction in which they steer, the number proceeding in one direction, together with a knowledge of the local conditions mentioned above, should indicate, very clearly, to the defenders the strength and direction from which the attack may be expected.

We have so far, only dealt with a defence against a serious attack made by a squadron capable of landing a large party for the land attack. Raids may however be made by single ships. In the early part of the last century raids by single ships seem to have been of frequent occurrence, for we read that in 1809 four or five attacks were made on the Ile de Bourbon. The landing parties were too small to capture the island, and except the destruction of a battery and the burning of a town little damage was done. Conditions have altered since then, and as no permanent result could be gained by a single ship attacking a properly defended harbour, it seems most unlikely that such an attack will be made. In any case the dispositions made for a serious attack will suffice, provided proper vigilance is maintained by the garrison, for it will only be by surprise that a single ship can hope to do anything. If a single ship does make a raid, it will be for the purpose of destroying the telegraph cable, or some particular gun, or search-light emplacement. To prevent this, the shore ends of the cable must be guarded by a detachment, and the defence of the emplacements is provided for in the general scheme of defence.

A RESERVE FOR INDIAN CAVALRY—A PROPOSITION.

BY MAJOR E. H. COLE, XITH P. W. O. LANCERS.

In the event of a great war breaking out involving the Indian Army the want of a full reserve of men and horses for the Indian cavalry would soon make itself felt. The wear and tear of men and horses in war has always been enormous, but in the South African War it was beyond all calculation and presumably in modern war we may expect this.

In our Indian Cavalry we have nothing to fall back on to replace casualties. No reserves of men or horses with the exception of the depôt, which in most cases, owing to the state of the horse market, would be filled with young immature horses and old corks.

Judging from what I know of Indian Infantry regiments, apart from the fact of having something to fall back on to replace casualties, a reserve is beneficial in keeping the regiments fresh with a flow of men through the ranks absolutely in the prime of life.

This question of a cavalry reserve must have presented itself to many and been well thought over, but possibly put aside on account of the difficulties which undoubtedly beset it. A reserve we want and the difficulties must be met, and I put forward my ideas to start the ball again to be criticised and torn to shreds but, in the hope, that in the end, from the ashes, like the phoenix, a workable scheme for a reserve may arise.

My proposition is this, that as a trial, cavalry regiments of the Bengal and Punjab Command should each form a reserve of 50 men, men being allowed to go to the reserve after 4 years' service, under the Regulations for the reserve now in force.

That the reserve pay should be :—

Mounted at Rs. 10 per mensem. The mounted reservist for this amount to agree to maintain a horse aged between 4 years and 13 years, passed as a troop horse and trained to go in the ranks.

The reserve men and horses to come up every year after the 15th March for a month's training at regimental headquarters, receiving the full pay of a sowar during the training. Men to train in white clothing.

Government to maintain saddlery, belts, swords and field service kit for reservists which, in the event of mobilization, would be taken over by the reservists free. The reservist's horse would be taken over by the regimental chanda on mobilization.

My contention is this, that provided we have the right class of man in our Silladar ranks, the yeoman owning and farming his own piece of ground, and every endeavour should be made to obtain this class, that a sowar when on furlough with his horse can keep it for Rs. 3 a month, if you take a reservist from the same class and allow him a margin of Re. 1, out of his Rs. 10 a month, he should put by Rs. 72 a year.

The reservist gets his horse price on joining the reserve, he can invest this in a horse, it is not a bad investment for him.

If we could only induce our yeoman sowar to use the horse in the plough in place of the bullock, it would be a great gain to horse production in India. A hardy horse can pick up a livelihood as well as a bullock, but the difference in value between the horse and the bullock creates a difficulty hard to overcome.

In India with peace and improved rail communication the horse is going more and more out of use, and he will do so unless the zemindar can be induced to take an interest in keeping him.

In a great agricultural country such as this is, we have absolutely no reserve of horses to meet the drain of war, and unless endeavour is made to induce horse breeding on a large scale by private individuals, on the occurrence of war we must purchase outside at great initial cost over and above transport charges.

Why should not the experiment be tried of inducing our yeoman sowars to keep and breed horses to be available as a reserve in war? Commence slowly, if it is a success increase the number of regiments to which the scheme is applied and increase the number of the reserve.

Purchasing officers find it extremely difficult to buy horses at Rs. 250 in fairs, yet in the same way that a yeoman sowar can keep his horse at his home for Rs. 3 a month, so I feel sure he can produce a serviceable horse for Rs. 250 if a good limbed horse from 14-2 to 14-3 is accepted; but what we want him to do is to breed his own horse in time. The horse produced in the first instance by the reservist should be quiet to ride, handy and steady under *rifle fire* when the reservist comes up for training, and if his horse requires more schooling, a rough rider can be put up to help out the reservist. The training of the reservist should consist of musketry and horsemanship.

My first idea was that the reserve should be in two classes—

			Rs.
1. Dismounted at	...	...	3 per mensem.
2. Mounted	...	...	10 „ „

but I do not think this would be sound, because we want the man with his horse complete, and we want to see how the scheme will take on with the ranks.

The recurring cost per regiment for a reserve of 50 men and horses should work out approximately to be in addition to rail fare :—

					Rs.
Pay for 11 months	...	...	...	...	5,500
Pay for 1 month	...	...	...	...	1,550
					<hr/>
			Total	...	7,050
					<hr/>

Initial for equipment per man—

					Rs.
Saddlery	...	...	...	...	60
Belts	...	...	...	...	3
Sword	...	...	...	...	15
					<hr/>
			Total	...	80
					<hr/>

Initial for equipment for 50 men

$$50 \times 80 = \text{Rs. } 4,000$$

In addition to the above, in the event of mobilization there would be a further charge of Rs. 3,500 for clothing for the reservists. Any such scheme is bound to be viewed with suspicion at first on all sides. Men were somewhat reluctant to accept the infantry reserve term of service at first, and I am told that men are not keen to accept the grants of land with horse breeding conditions attached. But it is hoped that if some workable scheme can be evolved for a cavalry reserve, their feeling of doubt will soon wear off.

It has been pointed out to me that Government will be paying $8 \times 12 = \text{Rs. } 96$ per annum more for a cavalry reservist, than for an infantry, and only gain the advantage of buying a horse at Rs. 250 in case of war.

But in case of war breaking out Government could not purchase a cavalry horse for Rs. 250 or Rs. 400 in this country at present. If a reservist can be induced to breed, there will be a certain number of horses available at once and young stock always coming in.

COVER.

A LECTURE DELIVERED BY BREVET-MAJOR T. FRAZER, R.E., AT
QUETTA IN MARCH 1904.

General Smith-Dorrien and Gentlemen,—

My subject is "cover" and it is a very big subject.

It includes the great ramparts and cupolas of scientific fortification; and it ranges through trenches and stockades, gun-emplacements and rifle pits down to the little tuft of grass which barely hides a single rifleman in battle.

Scope of lecture.—I have no intention of attempting to deal with the whole subject this evening.

I shall make no mention of permanent fortification, of siege-works or of intricate schemes of regular entrenchment. I shall try to avoid all technicalities and simply talk to you about the A B C of such cover as a field-army may ordinarily hope to take advantage of in action.

The importance of cover.—You will admit the vital importance of cover in action to the fighting men of every army. It is, I think, of special importance to a little army like ours; because we, unlike the great armies of the continent, can never hope to beat down opposition by sheer weight of numbers, regardless of loss.

Object of cover.—First, then, what is the main object of seeking cover in action?

If I put this question to a civilian audience, I venture to say that their unanimous reply would be—"to protect one's self from the enemy's bullets."

You know as well as I do that that is not a complete answer.

Battles are not won by men who think first of saving their own skins.

When a soldier goes into action, he is I think in much the same position as a sportsman who follows up dangerous game. If the sportsman's main object were the preservation of his own life, he would simply stay away. His main object is to kill his tiger before it can kill him. He takes every precaution and uses all available cover, I admit; but he thus protects his own life mainly in order to take the tiger's. So it is in battle—with this exception, that the sportsman's life is his own, while the soldier's life is not his own,—it belongs to his country.

Now will you agree with me that the main object of seeking cover in action, is that it may help you to kill your enemy, and that the preservation of your own life is only a means to that end?

I think we may add two other objects—minor ones but not unimportant, *vis.*, to induce the enemy to waste his ammunition, and to conceal your own dispositions.

But, if the main object is killing your enemy, then let us put away at once the ridiculous idea, still only too common, that it is *infra dig* for a soldier and more especially for a leader to take cover.

On certain occasions it may, of course, be necessary for a man to expose himself, *e.g.*, in order to put heart into those who hang back, or to cross ground where no cover exists. But *unnecessary* exposure is not only contrary to orders; it is absolutely criminal because—

(i) you cheat your country of your own life, which is not yours to give away,

(ii) you murder your men by drawing fire upon them;

(iii) you betray your General's dispositions.

And now I will ask you another question.

What is "cover"?

I suppose that every one of us, from the first day when he began to learn about practical soldiering, has known that cover consists of—

(i) cover from view; and

(ii) cover from fire.

The first naturally suggests a bush or a hedge, and the second a good parapet or a wall.

But we can get "cover" from other things than such material objects as these.

For instance, in some respects your own rifle is the best cover of all, if you hold it straight.

And your own common sense, or experience, or "slimness"—if you like to call it so—will often protect you, where no material "cover" is to be got.

For you all know that, however good your parapet may be, you are much safer and much steadier and therefore much more efficient, when the enemy is aiming at the wrong place than when he is aiming at the right one.

Hints for Individuals.

Now, before we consider how to provide "cover" for bodies of men, let me mention a few points which individuals may well bear in mind.

(a) One of them is referred to in Infantry Training, page 144.

"4. An almost universal rule in making use of cover is always to fire from the bottom and right, and not from the top and left; for example, it is best to lie down at the foot of a tree and fire to the right of it, and not to stand behind it; or to fire round the lower edge of a boulder and not over it."

Let us apply that advice to the case of a man in the open who finds say 3 big stones, which he can collect to cover his head. I venture to say that most men would arrange them as in Plate I fig. 1 and fire through the little loophole, whereas they would be much safer if they arranged them as in Plate I, fig. 2, and fired from the right-hand bottom-corner.

Think of this, too, when you are firing over an irregular crest-line. Don't fire over the highest points (as shewn by blue

dots in Plate I, fig 3), but from the lowest, and try to have most protection on the left of your rifle (as shewn by red dots in Plate I, fig 3).

And give your enemy credit for knowing as much as you do. When you have a boulder or a big tree opposite to you, and know that he is behind it, aim at the left-hand bottom corner of it as it faces you.

(b) Another little point was brought to our notice by a captured officer of the Free State Army. He said he could always tell which bushes our Lancers' horses were hiding behind, because he saw the points of the lances sticking up above the branches.

So the old story of the 'ostrich hiding his head in the sand' is worth remembering.' And it is not only Lancers who should remember it.

(c) I need hardly advise you to make as little movement as possible when you are actually firing. But sometimes you must jump up to fire and then drop down again.

Well, in that case, try not to jump up in exactly the same place every time!

(d) Another little point was brought to my notice at a Quetta field-day last autumn.

A native regiment was holding a line of karezes, and their khaki puggris blended perfectly with the heaps of dry mud. But a number of the men, from a laudable desire to make themselves inconspicuous, took off their puggris, with the result that their heads showed up like a row of black beads!

Moral—study your back-ground.

(e) Last little point,—a lesson which we can learn from our shooting experiences. When you put up a hare, you will often see her run only a short way and then sit down behind a bush. You go to that bush, and can't see a sign of her. Why?

Because as soon as you moved, she crawled away under cover to some better refuge.

And so, when we know that our enemy has viewed *us* into a bush, don't let us wait there for his bullet, but let us move off a little way at once, so that he may waste his ammunition.

"Cover" for bodies of men.

Now, I have done with individuals, and I come to the question of getting "cover" for bodies of men.

Dress.—First there is the clothing question!

It has attracted a great deal of attention lately; and we dress in heather-mixture at home, or in khaki out here.

All I have got to say about this is that any body of men, whether in close or open order, all moving in the same direction and all dressed alike from head to foot, *cannot* avoid being seen.

A mass of unbroken colour is contrary to nature. Look at a herd of deer or antelope; *they* are not all dressed alike.

The most inconspicuous body of men I ever saw was a company of a frontier regiment in Tirah, clambering up a broken hill-side on a wet day with their poshteens turned inside out. One man was brown, another dingy white, another grey, another mottled, and the whole blended perfectly with the varied tones of the rocky ground.

If we carry these observations to their logical conclusion, every regiment should display a multiplicity of shades and colours; but I am afraid we shall never be able to introduce anything so practical as that!

No smart Commanding Officer would stand it!

Tools.—Before we can make “cover” for ourselves, we must think how we are going to get the tools to make it with, and how we can most economically distribute them.

Every battalion carries a small number of picks, shovels, axes, etc., but my experience is that after a very few weeks of campaigning these are nearly all used up or required for camp-work.

The Pioneers and Sappers carry a good many tools; but they generally want them all for themselves.

In the British Army your nearest tool-depot is the Engineer Park which is with the Corps Troops, and there are many channels through which your indent must go before it reaches that Park.

In the Indian Army we are better off, because there is a Field Park in the Divisional Troops. But even that is too far off.

In South Africa, we had small depots of tools in charge of the engineers with every little column, and most battalions had, I think, an extra supply of tools in their own charge. That was a good arrangement, and I should like to see something of the sort in our regular Field Army, say a small Field Park, with each Brigade.

But, whatever arrangement we have, we shall always want more tools than we have got, and so we *must* economise.

Infantry Training, page 156. (Shelter Trench Exercise) says—

“**Tools.**—1. Each man will usually require a pick and a shovel, but it may sometimes be desirable to allot two men to each task, in which case the front rank man will carry the pick and the rear rank man the shovel.”

Now, *practically, in the field* I say it is almost always best to have two men with 1 pick and 1 shovel to each task.

The non-commissioned officers can carry some tools, also, to make good breakages.

I say this chiefly because tools will be scarce; but the plan has other advantages which I will mention, without dilating on them—

(i) It makes supervision more easy.

(ii) It makes the work progress more evenly.

(iii) It makes it easier for the man to use his rifle quickly when marching to and from his work.

That at least is my experience and I have done a good deal of superintendence of working parties in the field.

Boer Trenches.—Now, we have got the necessary tools, and what are we going to do with them?

Since the South African war we have heard a good deal about "Boer Trenches," that is to say deep, narrow trenches with inconspicuous parapets.

But they were not Boer inventions at all !

The Spaniards at Santiago used trenches 6 feet deep and 2 feet wide, with no parapets.

Both Boers and Spaniards used these trenches in prepared positions. They had ample time and ample coloured labour for their construction.

Under similar conditions, I believe that any intelligent army would construct equally well-devised trenches.

I saw an intrenchment in a village in the Chin Hills in 1889 that was as good as any "Boer Trench." It was just as deep, just as narrow, just as invisible, and it was covered up with trunks of trees so that it was much more difficult for us to get into it.

At the same time, I think that, before the South African war we were rather hide-bound in our ideas about field entrenchment. We were too apt to follow blindly the types illustrated in our little red book, and that little red book has even yet not quite recovered from Crimean influences, leavened by Chatham experiments.

Still, as far as I saw in the year 1900, I think our men were better than the Boers at constructing hasty entrenchments; but far behind them in taking advantage of natural cover.

Types of Artificial cover.

In the field, you can't always make just the sort of artificial "cover" that you would like to. The ground may be rocky when you want to dig, and it may be sandy when you want to build stone sangars.

Well, you have got to make the best of it.

First, of course, you will consider what sort of attack you may have to meet.

Will you be shelled ?

From what directions will you be fired at ?

Will you be rushed at night, or gradually approached by an enemy who "covers" himself at every stage ?

And, while you consider these questions, you have also to bear in mind that passive defence leads to no great results. In every direction you must consider how *you* will work forward, to what new positions the enemy may withdraw or advance, and what counter-moves you will make to check-mate him.

Among the many so called 'lessons' of the Boer war was one which, like many others, was only "rubbed in" by the Boers, for it had been foreseen by many military students as soon as smokeless powder and long-range rifles were introduced. I refer to the fact that "cover" is as necessary to the attack as to the defence.

The army which is first able to select a position in which to await attack will, of course, have more time for the preparation of "cover"; but the attacker will also have to work, and as most of his work must probably be done at night, he will have to make up his mind beforehand as to the "cover" he intends to construct.

As a general rule, I think we should specially seek cover from view while the enemy is still distant, and cover from fire when he is near.

If we can get the two in combination, our "cover" is of course ideal; but we do not often have such luck as that.

If we are invisible at long ranges, we shall escape a good deal of artillery-fire and we shall not give away our positions and the extent of our front too soon. Moreover, we may expect the enemy to waste a good deal of ammunition on the wrong place.

But at short ranges we cannot remain unseen, so the best thing to do is to protect ourselves from the fire that is certain to be aimed at us.

Let us first consider trenches, and how to make them inconspicuous.

(a) Trenches.

Of course, all straight lines and all banks of fresh earth are abominations; but even they have their uses if you display them in dummy trenches designed to draw the enemy's fire.

The worst trench of all to occupy is a shallow trench with an unbroken parapet. It gives little protection to yourself, but a clearly defined target to the enemy. You would be just as safe—perhaps safer—lying in the open with no "cover" at all.

Time will generally be too short for you to dig deep trenches; but always aim at depth rather than width. At the same time, remember that the deeper you go the more trouble you may have from surface-water.

In the North of Quetta Cantonments a 6 feet trench would be quite dry, but in the Residency compound it would probably be ankle-deep in water.

And then the question arises—what will you do with the earth you dig out of your trench?

If you make a parapet in front of you, try to cloak the fresh earth with stones, turf or bushes; but remember that turf and bushes may wither and give you away altogether.

Of course you will make your crest-line as irregular as possible, but don't put big stones at regular intervals along the top of it. Use stones by all means; but arrange them in irregular heaps, imitating as far as possible the natural ground about you.

Don't smooth the forward-slope of your parapet, and don't dress the foot of it.

That is not entrenching. It is gardening!

But, suppose you don't use the earth from your trench as a parapet in front of you. Well, there are several other ways of getting rid of it.

You may scatter it about over a wide area, or you may collect it behind rocks and bushes where it will be unseen.

You may make a dummy parapet of it some little way off, for the enemy to waste his ammunition on. You will of course make it fairly conspicuous, and try to make the enemy think it is occupied by dotting old helmets or clods of earth that look like helmets along the crest-line, or by some other similar dodge; but don't overdo it!

Finally, you may use the earth from your trench by making a parapet behind you.

This has two advantages—

1st.—It will probably induce the enemy to fire high.

2nd.—If you are near the sky-line, your heads will be less conspicuous against a back-ground of earth than against a back-ground of sky.

But remember that when the sun is low and in front of you, the shadows of your heads will be thrown on the parapet, if it is too close behind you.

Now, I must say something about stones and timber as materials from which cover can be made.

(b) Sangars.

We always come across them on our Indian frontiers, and we saw a good deal of stones at any rate in South Africa.

First, I would say that you can't find a stone too big to use in building sangars. If you use small stones, a single rifle-bullet may bring down the whole structure. I have seen that happen myself.

You can't hope that your sangar will be quite invisible; but you can do a good deal by having loose rocks and stones in front of its foot, and by making its top irregular.

Loop-hole your sangar by all means; but don't give away the positions of your loop-holes more than necessary.

For instance, Plate 1, fig. 4 shows a bad type of loop-holed sangar and fig. 5 shows a good type.

Remember, too, that sangars are very easily knocked down by shells, and that splinters of stone will fly about in all directions. The danger of this can be reduced by using bushes, earth or sand-bags along the top of your sangar and on its inner face.

Sangars require a lot of inspection and repair if you occupy them for long.

I remember what happened to a line of sangars at a certain place in South Africa—It was rainy weather; so the men who occupied them the first night tucked the ends of their water-proof sheets under the top layer of stones. When they rolled up their kits next day, they jerked down those sheets and *with them* most of the top stones.

They weren't going to occupy the sangars again for some time, so they didn't trouble to replace the stones.

Well, the same thing happened with the next lot of men, and so on until after a week the sangars were rather dilapidated.

If big stones are not available, you can do a good deal with shingle packed in biscuit-boxes or between boards. A thickness of 3 to 6 inches will stop a bullet.

In South Africa we made walls of shingle between sheets of corrugated iron; but of course they were no use against artillery.

Stockades are generally made of timber or bamboos, and we used

(c) Stockades.

to meet a good many of them in Burma; but against modern rifle fire

PLATE I.



Fig. 1



Fig. 2



Fig. 3

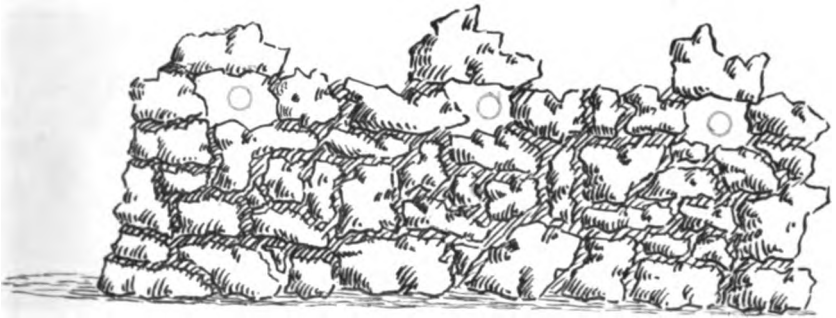


Fig. 4

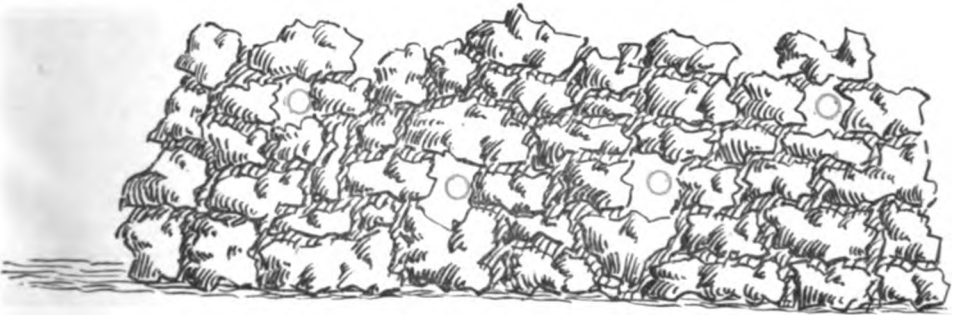


Fig. 5

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dots in Plate I, fig 3), but from the lowest, and try to have most protection on the left of your rifle (as shown by red dots in Plate I, fig 3).

And give your enemy credit for knowing as much as you do. When you have a boulder or a big tree opposite to you, and know that he is behind it, aim at the left-hand bottom corner of it as it faces you.

(b) Another little point was brought to our notice by a captured officer of the Free State Army. He said he could always tell which bushes our Lancers' horses were hiding behind, because he saw the points of the lances sticking up above the branches.

So the old story of the 'ostrich hiding his head in the sand' is worth remembering. And it is not only Lancers who should remember it.

(c) I need hardly advise you to make as little movement as possible when you are actually firing. But sometimes you must jump up to fire and then drop down again.

Well, in that case, try not to jump up in exactly the same place every time!

(d) Another little point was brought to my notice at a Quetta field-day last autumn.

A native regiment was holding a line of karezis, and their khaki puggris blended perfectly with the heaps of dry mud. But a number of the men, from a laudable desire to make themselves inconspicuous, took off their puggris, with the result that their heads showed up like a row of black beads!

Moral—study your back-ground.

(e) Last little point,—a lesson which we can learn from our shooting experiences. When you put up a hare, you will often see her run only a short way and then sit down behind a bush. You go to that bush, and can't see a sign of her. Why?

Because as soon as you moved, she crawled away under cover to some better refuge.

And so, when we know that our enemy has viewed us into a bush, don't let us wait there for his bullet, but let us move off a little way at once, so that he may waste his ammunition.

"Cover" for bodies of men.

Now, I have done with individuals, and I come to the question of getting "cover" for bodies of men.

Dress.—First there is the clothing question!

It has attracted a great deal of attention lately; and we dress in heather-mixture at home, or in khaki out here.

All I have got to say about this is that any body of men, whether in close or open order, all moving in the same direction and all dressed alike from head to foot, *cannot* avoid being seen.

A mass of unbroken colour is contrary to nature. Look at a herd of deer or antelope; *they* are not all dressed alike.

The most inconspicuous body of men I ever saw was a company of a frontier regiment in Tirah, clambering up a broken hill-side on a wet day with their poshteens turned inside out. One man was brown, another dingy white, another grey, another mottled, and the whole blended perfectly with the varied tones of the rocky ground.

If we carry these observations to their logical conclusion, every regiment should display a multiplicity of shades and colours; but I am afraid we shall never be able to introduce anything so practical as that!

No smart Commanding Officer would stand it!

Tools.—Before we can make "cover" for ourselves, we must think how we are going to get the tools to make it with, and how we can most economically distribute them.

Every battalion carries a small number of picks, shovels, axes, etc., but my experience is that after a very few weeks of campaigning these are nearly all used up or required for camp-work.

The Pioneers and Sappers carry a good many tools; but they generally want them all for themselves.

In the British Army your nearest tool-depot is the Engineer Park which is with the Corps Troops, and there are many channels through which your indent must go before it reaches that Park.

In the Indian Army we are better off, because there is a Field Park in the Divisional Troops. But even that is too far off.

In South Africa, we had small depots of tools in charge of the engineers with every little column, and most battalions had, I think, an extra supply of tools in their own charge. That was a good arrangement, and I should like to see something of the sort in our regular Field Army, say a small Field Park, with each Brigade.

But, whatever arrangement we have, we shall always want more tools than we have got, and so we *must* economise.

Infantry Training, page 156. (Shelter Trench Exercise) says—

"*Tools.*—1. Each man will usually require a pick and a shovel, but it may sometimes be desirable to allot two men to each task, in which case the front rank man will carry the pick and the rear rank man the shovel."

Now, *practically, in the field* I say it is almost always best to have two men with 1 pick and 1 shovel to each task.

The non-commissioned officers can carry some tools, also, to make good breakages.

I say this chiefly because tools will be scarce; but the plan has other advantages which I will mention, without dilating on them—

- (i) It makes supervision more easy.
- (ii) It makes the work progress more evenly.
- (iii) It makes it easier for the man to use his rifle quickly when marching to and from his work.

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Fig. 1



Fig. 2



Fig. 3

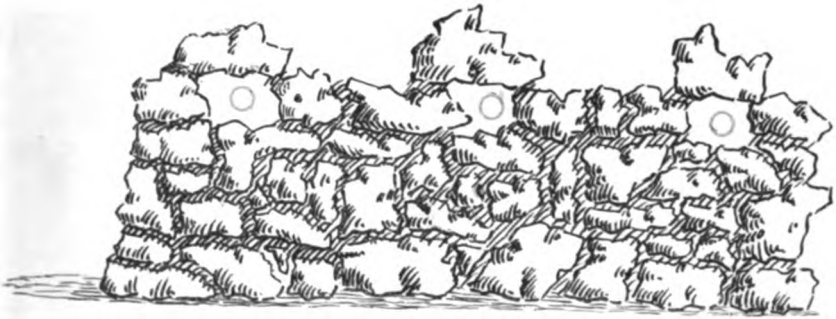


Fig. 4

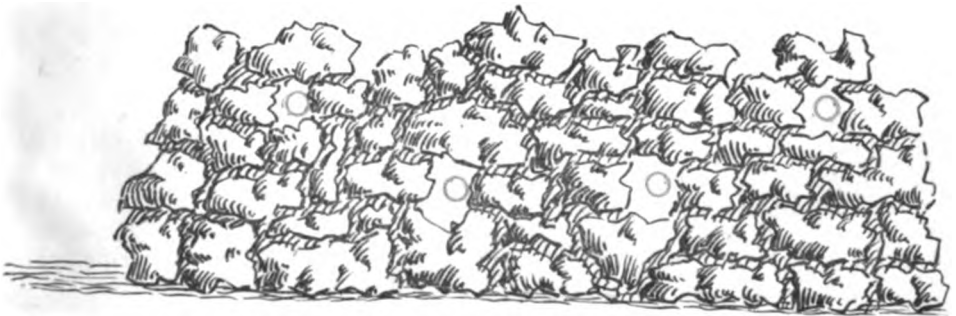


Fig. 5



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they give practically no protection. They are also generally very conspicuous, unless in thick jungle.

I should class stockades now-a-days as merely obstacles giving some cover from view ; but I except those heavy structures of railway-iron, etc., which belong rather to semi-permanent fortification.

I want to say a word now, about sand-bags. They are very

(d) Sand-bags.

useful in many ways, especially for revetting or crowning parapets ; but sand-bag

loop-holes, *except for point blank fire*, are obsolete.

Try to design one giving a sufficient thickness to your parapet and sufficient vertical splay for the elevation and depression of your gun or rifle, and sufficient horizontal splay for lateral fire. You can't do it without using about 15 bags and some sticks, and then you will have *not* a loop-hole but a great yawning mouth which simply invites the enemy's bullets to enter it.

And no army can afford to carry sandbags at the rate of 15 per loop-hole !

Where to place trenches, etc.—Now having dealt with the sort of "cover" we may make for ourselves in action, let us consider where we are to put it.

First of all, we won't have long continuous lines of defensive works ; we shall only occupy the most favorable points and provide covered communication between them.

The sky-line.—Well, the worst bogey of all that the man who places a trench has to face, is the *sky-line*.

It is very easy to preach against trenches on the sky-line ; but the preacher generally forgets that the sky-line is a very variable line and often impossible to avoid.

For instance, on an unbroken glacis-like slope (*vide* Plate 11, fig 1), such as we often had to defend in the Free State, every line is the sky-line to a man lying further down the slope.

(That is the sort of place where you are much better without a parapet.)

Then consider irregular hill sides, as shewn in Plate 11, figs. 2 and 3.

In fig. 2, X the crest of the hill is always on the sky-line and Z is never on the sky line ; while Y is off the sky-line to an enemy at A, but on the sky-line when the enemy reaches B. Hence we see that we cannot always avoid the sky-line by putting our trench below the crest.

In fig. 3, X, the crest of the hill, is invisible until the enemy passes Y ; but Y is always on the sky-line. Hence we see that the crest of a hill is not always on the sky-line.

The only certain way of deciding what is the sky-line, is to put yourself in the enemy's position.

Then there is the question of how much ground you can occupy. That will often bind you down to a line of defence which is not really the best to take up.

Another most important consideration is how you are going to cover your communications with your firing line. In defensive works

this is generally looked to; but in the attack—and the attack may take days to carry out—it is constantly neglected.

My opinion is that it is less important to *provide* "cover" for your firing-line, than for the communications in rear of it. The former may be trusted to do something for itself; but it is nobody's business to shelter the men who feed the front line, and they can't do it themselves because they are moving.

They are also more exposed to fire, because their very movement makes them conspicuous; whilst the firing-line may be still and invisible.

I will illustrate what I mean by a case which actually occurred in South Africa. We were more or less besieged by De Wet at a place called.....

One night we pushed forward a company to a knoll commanding a bed of rushes from which the Boers used to snipe our watering place. The Captain of the company knew his business and made his men put up stone-shelters for their heads; but no one thought of providing covered communication behind them.

Next day, the ground in rear was heavily enfiladed and no one could cross it without being hit. Consequently every man on the knoll had to do without extra supplies of food, water and ammunition for 24 hours, and couldn't even move from his own little shelter.

On the following night we ran a rough stone wall across the enfiladed ground and men were enabled to crawl backwards and forwards in perfect safety.

Now, let me illustrate the various considerations which affect the siting of artificial cover, by the case of the South African kopje shewn in Plate III. The plate has been drawn from memory and is only approximately correct.

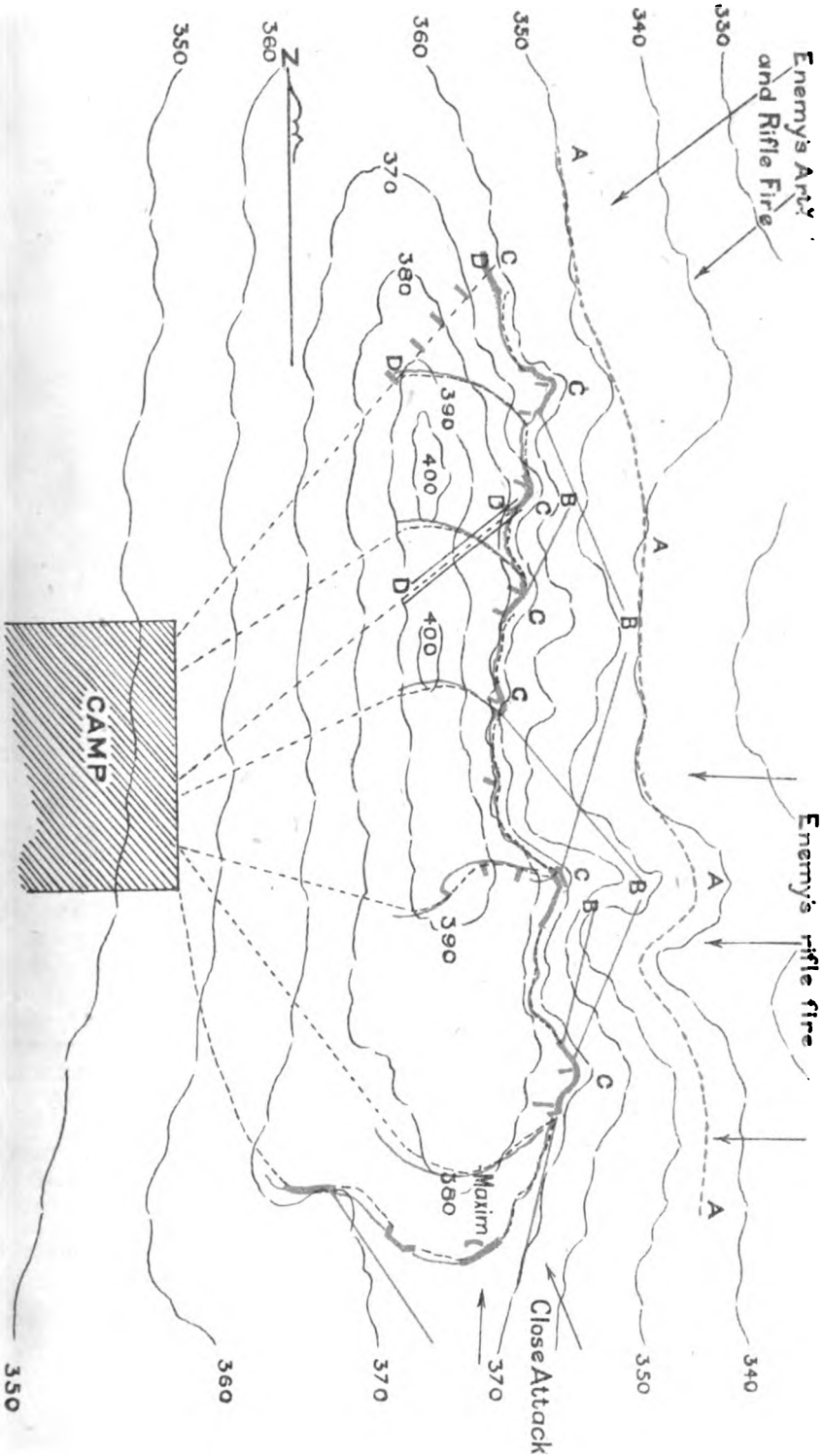
The kopje was a long narrow ridge,—so long that we were able to hold only the northern and highest end of it. The rear slopes were regular and gentle; the forward slopes irregular and in places precipitous. The enemy's heaviest fire was from another kopje to the north-east; he also occupied a spruit parallel to our front with riflemen whose fire was distressingly accurate; he tried to press his attack home from the south and actually got within 400 yards of us there, covering himself with sangars.

Our available strength was nominally half a battalion, really something under 250 rifles. With these numbers we had to hold our front and right. Our left flank and rear were secured by the remainder of the force to which we belonged.

Now, what was the best line for us to occupy?

The war had already taught us the advantages of occupying the bottom of a slope. Could we do so here? No, we could not, and the reasons were—

- (i) It involved too long a line of defence for our 250 men to occupy, *vide* A. A. A. in Plate III.
- (ii) It entailed great exposure of our communications between the camp and the firing-line.



- (iii) The enemy were certain to get on the top of the ridge at its south end, and would thence be able to look into and fire down upon some of our low-sited trenches.

The alternatives were to hold the crest of the ridge, or to hold some intermediate line on the forward slope.

We decided to take up a line (*vide* Plate III, C. C. C. C.) about $\frac{1}{3}$ rd of the way down the forward slope, and we were brought to this decision mainly by the number of men available. Otherwise, the choice was a compromise between avoiding the sky-line and reducing the exposure of our communications, and, it was also affected by a detailed examination of how best to command the lower slopes and how to utilise the features of the ground for the concealment of our trenches.

Now, observe that we made no attempt to command every part of the lower slopes from the ground *immediately* above it; but we did take most particular care that every spot which was "dead ground" from one trench should be searched from at least one other trench (*vide* shaded portions B. B. B. in Plate III).

We did not have a continuous line of defence. We occupied only the most favourable points, *viz.*, the spurs and bluffs which allowed the most advantageous use of men and rifles and which moreover, were strewn with big boulders, stones and bushes, whereby the artificial part of our "cover" was rendered less conspicuous.

The occupied portions of our position are shewn in thick red lines marked C. C. C. in Plate III.

Observe how we protected our trenches from enfilade (*a*) by providing traverses, (*b*) by having the highest parts of each spur between the most dangerous fire and the enfiladed trench.

I use the word "trench"; but it is really a misnomer. The ground was so rocky that we could only dig a foot or two in the most favourable places. The whole of the artificial "cover" we used, consisted practically of low dry-stone walling.

Great attention was paid to the safety of our communications. Throughout its length the line of defences was connected by low stone walls, behind which men could crawl unseen, and these passages were defiladed partly by traverses, but, mainly by giving them a zigzag or wriggling trace.

The problem of giving "cover" to men moving from the camp to the trenches was a difficult one. For although up to the crest of the ridge they could safely use the paths shewn in dotted black lines in Plate III, they were absolutely exposed as soon as they passed over the crest.

An attempt was made to take them directly to their trench between a double line of walls, as shewn at D. D. in Plate III. This is an excellent example of how *not* to do it. You will observe that D. D. forms a funnel which is raked by the fire from the north-east. If you must take your men along an enfiladed line, then make some such arrangement as shewn at D. D. in Plate III, *viz.*, a series of traverses, so that a man may rush from one to another, as a rabbit bolts from bush to bush.

We solved the general problem by curving the trace of our communications down the forward slope, and providing low stone walls and occasional traverses to cover moving men from the most searching fire. (*Vide* Plate III).

We made no attempt to make the "cover", which we provided for our communications, inconspicuous, because it was to our advantage that the enemy should waste ammunition upon them. Moreover, when our men were moving, they were unseen, so that it was 100 to 1 against the enemy aiming at the right place at the right time.

The kopje was actually attacked for 5 successive days, and the line of defence remained unaltered throughout. At the beginning, the defences were necessarily rather sketchy; but they were added to and improved day by day and night by night, until they assumed the form shewn in Plate III. Our casualties were heavy,—especially on our right;—but the line of defence was nowhere pierced.

Most of my remarks so far have been with reference to "cover" for riflemen.

I have left out the gunners; because at their long ranges they may generally hope to find natural "cover". If not, then all I have said about the construction of artificial "cover" applies to them also, but on a different scale.

For their especial edification, and as a general hint to others,

"Slimness."

I will now mention three of the many dodges by which I have seen Boer

guns get cover.

(i) The first was a very simple one. They ceased firing! We immediately claimed that we had "silenced them," "knocked them out" and so on, and turned our guns on some other target. The Boers then quietly moved their gun somewhere else, or reopened fire from the old place when they had had the rest and quiet which we had so kindly allowed them! I have seen this happen day after day.

(ii) Another dodge was employed by them in the case of a pom-pom at a place where we were fighting for several days in October, 1900. It opened from the direction of a very obvious sheep-kraal. We saw men move in the kraal and the little shells were evidently coming from somewhere about there; so the kraal became our target. That pom-pom used to be silent for hours at a stretch. Then we claimed, as usual, that we had knocked it out, and we were more and more firmly convinced that our shells were searching the right place. Accordingly we kept on hammering the kraal; but we never went near the pom-pom! It wasn't in the kraal at all! It was simply in the open close by, covered by a very slight fold of the ground.

The Boers calculated that we would find the kraal very attractive, and their calculations were confirmed.

PLATE IV.

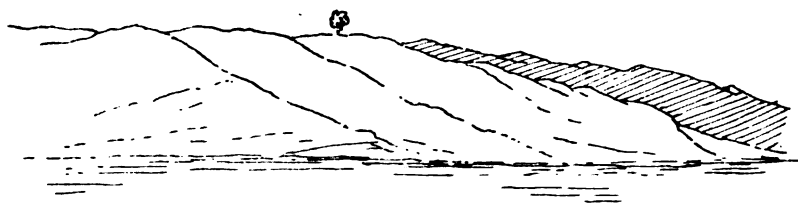
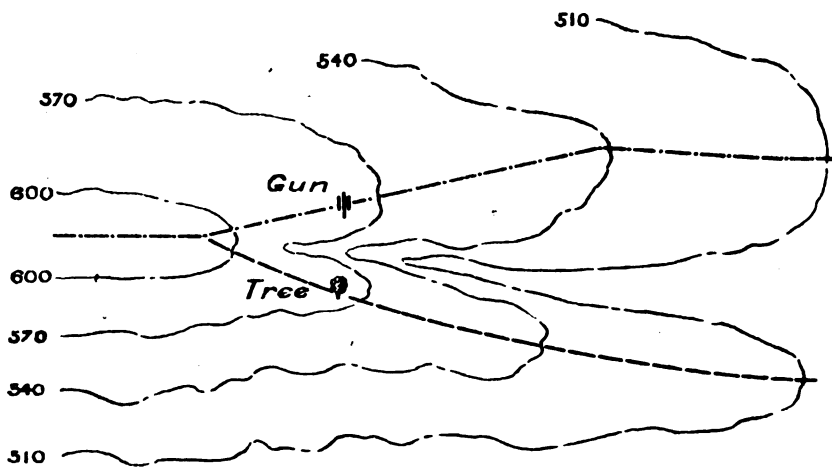


Fig. 1.



Crest line of Main Ridge ————
 -do- Spur ————

Fig. 2.

- (iii) Another similar but, I think, a cleverer trick was played on us one day when we had marched into camp at a certain place on an open plain about 4,000 yards from some hills. Our mounted men were amateurs and had not taken the trouble to search the lower spurs;—they were in too great a hurry to come in to breakfast.

From our camp the appearance of the hills was as shewn in Plate IV Fig. i.;—with one very conspicuous, big, bushy tree on top. Just as breakfasts were ready, shells began coming in from the direction of that tree. It seemed obvious that the Boer gun was hidden close behind it and so the tree became our target.

Now, the gun *was* behind the tree; but it was more than 300 yards behind it! and there was a small valley between them. The gun was on the main range, and the tree on a spur, *vide* Plate IV, Fig. 2.

The Boers here again quite accurately calculated on what we would take as our target, and arranged to be somewhere else.

Moral—When a succession of parallel spurs is available, put your guns on a back-spur.

Fortunately, on this occasion we had a very erratic 4·7 gun with us, which sent one of its lyddite shells about 300 yards further than it was meant to, and that was enough to make the Boer guns go.

I shall say nothing more about tricks of this sort, because any intelligent man—cavalry or infantry, gunner or sapper—can invent a hundred such devices for himself. But it is much easier to invent them, and it is also much easier for us to work out good schemes of “cover” in action, if we constantly practice them, constantly think them over and constantly talk about them in times of peace.

That must be my excuse for bringing so many elementary points before you this evening.

Remarks by Major General H. L. Smith-Dorrien, D.S.O.

I think the lecture we have heard must strike every one as the views of a thoroughly practical soldier based on his actual experiences campaigning where few of the lessons of war have missed his notice. There is nothing I can contradict and very little I can add to, but I can endorse a good many of his experiences. First, with regard to the lances of our men giving away the positions of our scouts and reconnoitring parties. I had some quite sad experiences of that, and I found that not only did the lances give away positions, but the Boers soon got to learn that men hampered with lance and carbine, were none too keen to dismount and fire and they took great liberties in consequence with what they were pleased to term “our men with large poles.”

So inconvenient did this become, that I had at last to give one regiment the choice of remaining on the Lines of Communication, or leaving their lances behind.

With regard to natives taking off puggrees and thereby giving away their positions by the conspicuousness of their black heads

against the earth background ; I too have noticed this on more than one occasion on manœuvres and field days in this District. What Major Fraser says about the impossibility of hiding from view any body of men dressed in one colour, we must all agree with. I saw it on the last manœuvres, especially one case of the West Yorks in khaki working in single file along a khaki colored hill, and I have also seen the contrary result he mentioned in Tirah, namely the invisibility of men in parti-colored poshteens moving up a hillside, but for this I can suggest no remedy as I agree with him that no Commanding Officer would stand a patch-work regiment.

What the lecturer has said with regard to the insufficiency of our entrenching tools, and the inadequacy of our system for carrying and providing them in the field is perfectly true and applies also to many similar questions. The truth of the matter is, that to have all our requirements for the field kept up to date in peace, means enormous expense, and as a result a good deal has to be improvised in the field. For instance in South Africa we had to get as many tools as we could out of depots on the Lines of Communication and from our own field parks to accompany columns. But I would very much like to see the necessity for these Brigade field parks, as suggested by Major Fraser, recognised and provided for in peace time.

War is getting so scientific now-a-days, that a properly equipped army means enormous expense, but that the Government is doing its utmost to make the army efficient, I am in a position to state. Only last year it sanctioned permanent machine gun mules, and I am in hopes in time permanent ammunition mules may be provided too ; for untrained mules may lead to disaster. I believe the question of improving our efficiency in field telephones, telegraphy, and signalling is being considered, and we may hope in course of time that the provision of ample intrenching tools may also be considered an absolute necessity. One point with regard to intrenching tools I would like to touch on is, that it should be recognised that what tools we have are, during peace time, kept in the very best possible order. Every campaign I have been on I have seen the wooden helves of our tools break at the first go off, merely because they had not been kept supple with oil in time of peace. I have lately recommended that a special issue of oil be sanctioned for this purpose.

I can confirm the lecturer's remarks that though our troops in South Africa, with the exception of Colonials, did not get as good as the Boers in making use of natural "cover", yet they got quite as good at improvising "cover".

There is one point with regard to dummy walls and trenches he has not touched on, and that is that their construction is so misleading to an enemy that they enable a small force to hold a much larger position than it otherwise could.

In the matter too of dodges to hide our loopholes from the enemy he has told us most things, but I might make one addition. We found that with loopholed walls, there was generally some point of view from which they would become conspicuous to an enemy by the light from behind them showing through. To obviate this we put horizontal sticks into the tops of the walls, protruding some three feet, and on to the ends we made the men

hang their blankets. The men at the loopholes between the blanket and the wall became quite invisible from the front.

As an illustration of the use of rammed shingle between sheets of corrugated iron, I can't think of a better than the type of Blockhouse so largely used by Lord Kitchener in South Africa from the middle of the campaign on. These blockhouses were octagonal in and the walls were constructed of two sheets of iron with 4 inches of shingle rammed between and were found to be quite bullet-proof.

I fear I am keeping you rather long but the subject admits of so many comments that it is difficult to deal with it in a short space of time. I shall say one word on "siting" by remarking that in the early days of the War the Boers were very fond of making their trenches in front of and along the bottoms of the hills. A good example of this was the position they had prepared on the north side of Bloemfontein but which they never held. Such a position gives a magnificent field of fire and with smokeless powder is most difficult to discover, but retiring from it, reinforcing it, sending up ammunition and water have to be done at night or in full view of the enemy.

Major Fraser's description of the way they overcame that difficulty in the neighbourhood of Frederichstadt and further his excellent sketch and description of the defences of a position in that same neighbourhood are object lessons in themselves. No one can have listened to his reasons for the positions of the trenches selected with that clear sketch of the ground before their eyes without being convinced that the best possible use of the ground was made for the small force which had to hold it. It is a fine example of how practice in actual war makes perfect.

It only remains for me to express the thanks of this audience for the most graphic lecture we have listened to and to remark that I feel sure that not one of us will leave this theatre without having learned many tips for our next campaign.

THE TRAINING AND ORGANIZATION OF INFANTRY SCOUTS.

BY W.

In the April number of this Journal were two most interesting articles dealing with Reconnaissance, in each of which great stress was laid upon the necessity and difficulty of scouting, and the need for special training for scouts.

"Infantry Drill 1902" lays down that at least 16 men and 2 non-commissioned officers per company should be trained, under a selected officer of their company, as scouts, and lays down as necessary requirements a number of attainments which can only be acquired by fairly well educated men after a protracted training simply and solely as scouts. Signalling, map reading and the use of the compass, the use of the stars by night, report writing, besides actual proficiency in scouting itself, all these are attainments which uneducated men find it extremely difficult to acquire, even under the most favourable conditions. Under the present system, *or lack of system*, which obtains in the British army, it is practically impossible to train scouts effectively.

In the first place, if the training of scouts is to be taken up seriously, then 16 men and 2 non-commissioned officers per company is too large a number to be trained effectively. A company seldom has over 80 men for duty, and it is not practicable to strike off $\frac{1}{4}$ th of this number from all duties for any length of time, yet this is the first step towards attaining efficiency. Constant practice is necessary, and if routine duties, such as guards, fatigues, barrack square parades, etc., are to be done in addition, the work must inevitably tax a man's keenness too severely. Special privileges as regards passes, furloughs, etc., must be granted if the position of scouts is to become an object of ambition; the status of the men selected will be the surest safeguard against the abuse of such privileges. In the second place, it is difficult to find 16 men and 2 non-commissioned officers in every company who fulfil the necessary qualifications for scouts. Education is not mentioned in "Infantry Drill" as being a necessary qualification for a scout, but no one who has spent some months on his company scouts will deny its paramount importance; it is not the mere knowledge of the three R's that is of such value as the habit of mind engendered by education and the power of learning new facts, and new methods. Scouts must be marksmen, gifted with good eyesight, physically powerful—"2,000 feet (up steep hills) in marching order, without stopping is a fair test"—("Infantry Drill 1902")—good at finding their way, etc., and above all, keen on their work. Probably the

best way of avoiding this difficulty is to have fewer scouts per company, say 8 men and one non-commissioned officer, a change which will make the scouts a more select body of men, and consequently make the concession of privileges to them a much easier matter.

Thirdly, scouts must have special concessions in the matter of boots, clothing, rations and other allowances; the work is indisputably harder than an ordinary private's work and, if properly done, cost more in boots and clothing, and often more in food.

Furthermore, scouts must be treated as a superior class, and it should be understood that to be a scout is a step towards promotion to Lance-Corporal; all this would follow naturally upon the reduction of the number of scouts per company to 8, and the consequent more careful selection. I have not recommended extra pay for scouts, not that I do not consider it in every way desirable, but because it is improbable that the Indian Government, in view of the recent large increase in British soldiers' pay, which has increased the estimates by £500,000, would assent to any further increase of pay, even for 70 men per battalion, and it is questionable whether soldiers would not prefer the concessions of privileges such as I have suggested, to any small increase of pay.

We are confronted with the obvious fact that men will not regularly do more and harder work than their fellows, without something by way of compensation. Some regiments recognize this and give their scouts extra pay under regimental arrangements, others give them a badge, many regiments strike their scouts off all duties for a considerable time; others do none of these things, and consequently the scouts have little training, are hardly superior to the rest of the company, and are none too keen on their work, only make an unwilling appearance at the Annual Company Training, or as our old friend the "Savage Enemy," in Tactical Schemes.

I would go so far as to say that of all the various branches of military art which are studied in the army, reconnaissance is the most neglected, and yet the most important. In many battalions the present system is a mere farce, though, as one of the articles in the last number pointed out, our disasters in South Africa were largely due to insufficient reconnaissance.

If scouts are to be a reality, and a force to reckon with in the army, their training and management must not be left to the initiative of each regiment. We want definite, carefully considered official regulations on the subject, which, whilst allowing all reasonable latitude as to the method of training scouts, lay down definitely what their organization and privileges are to be, and on what lines they are to be taught; if such a set of regulations were drawn up, and firmly enforced by all General Officers Commanding, a new era for reconnaissance in the Army would commence, with the happiest results.

As regards the organization of scouts, I would suggest that 8 men and 1 non-commissioned officer per company be selected as scouts; instead of being trained by a selected officer of their own company, let them all be trained by two officers, one for each $\frac{1}{2}$ battalion; their numbers are not too large to make this impracticable, and it

will generally be possible to find two officers who have a real aptitude for the instruction of scouts; whereas the chances are greatly against finding an officer in each company suitable for the purpose, especially when most companies have only two officers each. The scouts of each company should invariably work together. A reserve of scouts will be automatically formed by the withdrawal of men from the scout squad to take up employment as Non-Commissioned Officers, or for training in the various branches of the Supply and Transport Corps, Cookery, Mounted Infantry, etc. Scouts should be given special facilities for undergoing such training, which is of special value to them. After 5 years, too, a scout might well be returned to ordinary duty, only doing duty as scout on field training. On the other hand, men not likely to make good scouts should be ruthlessly rejected, otherwise the efficiency of the whole body will be endangered.

As regards privileges, I would place before everything else the grant of a suitable badge to all qualified scouts, whether actually training as scouts, or whether not training, but qualified, as indicated above. Other privileges must necessarily vary greatly with each regiment; the liberal grant of furloughs and passes suggests itself at once, and many other privileges soon occur to any one who thinks upon the subject.

Finally, I would strongly urge the grant of some small sum—if only two or three hundred rupees—to each regiment, to be earmarked for the instruction of the battalion scouts. This sum would provide for books, stationery, maps, etc., and would enable scouts to be taken out for two or three days' bivouac, besides providing for certain minor articles of equipment such as pencils, note-books, compasses, etc.

**THE FOLLOWING LECTURE WAS DELIVERED BY MAJOR F. M. CRUM,
2ND BATTALION, K.R.R., AT RAWALPINDI IN APRIL 1904.**

SKIRMISHING.

I.—Introduction.

II.—History.

- 1757. Wolfe. Xenophon.
- 1803. Moore. Light Division. Colonel Maurice.
- 1814. Peninsula and Waterloo. Sir H. Smith.
- 1837. Colonel Gawler.
- 1863. American Civil War. Colonel Henderson.
- 1870. Germans. Boguslavski. Sheridan.
- 1878. Russians. Macgahan on Gorni Dubnik.

III.—What the Skirmisher has to do.

A rule for all Skirmishers.

IV.—How he is to do it.

Extension.

Loss of control.

What the individual must know.

Hythe.

Musketry.

V.—How are we to train the Skirmisher ?

Difficulty.

Germans and French.

Work.

Imagination.

Keeness.

Cover.

Kit.

Cavalry.

VI.—How are we to ensure that the individual will do well, when left to himself in battle.

Discipline.

Intelligence.

A good spirit.

Battle-discipline.

VII.—Conclusion.

SKIRMISHING.

Most books on any particular subject, begin with a short account
 Introduction. of the origin of their subject.

Take for instance the Badminton Library, each volume begins with a short history of its subject. The volume of Polo begins with a chapter called "The antiquity of Polo." Now most Polo players will probably skip that chapter and be anxious to get on with the more practical part of the book.

But for those who have the time, the study of the history of a subject is both interesting and instructive. It is true the present and the future concern us more than the past, but history repeats itself. If therefore we look into the history of the past, if we profit by the experience of others who have gone before us, then we shall help to qualify ourselves for the present, and we shall prepare ourselves for, and be able to adapt ourselves to, the conditions of the future.

I propose therefore to touch on some instances of the past which to my mind are useful lessons—lessons which help to convince me that I am right when I assert that skirmishing—(and with skirmish I include shooting) that skirmishing, is the branch of the Infantry Soldiers training which requires most attention to-day.

By your leave then, I will start with the year 1755, 150 years
 History of Skirmishing. back, the English and French were fighting for supremacy in the back-

woods of America.

Imagine a force of British red-coats, drilled with a precision we know little of to-day, their belts pipeclayed and buttons shining, their wigs and pig-tails powdered, and each man turned out as if for guard at Windsor Castle.

Such a force it was, which under General Braddock, was surprised and surrounded by the French and their Indian Allies. "A few of our regulars," we are told, "tried in their clumsy way to copy the Virginian Skirmishers and fight from behind cover. But General Braddock, all his ideas of courage and discipline shocked by such irregular proceedings, beat them with his sword and ordered them with oaths to form back into line, where, huddled together, in full view themselves, they fired volley after volley at the impassive trees, while the hidden enemy mowed down the conspicuous red lines at leisure."

Such were our methods and such were the disasters which befell our arms in America, until Pitt came to power.

Pitt selected for their merit, Generals such as Howe and Wolfe.

Lord Howe a General at 34, trusted and worshipped by all under
 Howe, 1756. him, had learned his profession by scouting

and skirmishing himself with friendly natives in their backwoods. Strict in discipline—he had new ideas and good reasons for all he insisted on.

He abolished the powdered wig and the long tail coat, and made his men work with their heads.

His early loss was a calamity felt by all.

And Wolfe—we all know about him—we all know of his victories at Louisburg and Quebec, and how he helped to pass supremacy in America from French

Wolfe, 1757.
to English hands.

What were his methods? this young General of 32 who had made his name by the wonderful state of efficiency to which he had brought his Battalion in peace time. We are told that he called for the best marksmen, the most active and intelligent men from the Regular Battalions, and formed them into what was then a new idea.—Light Infantry Regiments. We read how at some manœuvres, when these Light Infantry were practising for the coming fight at Louisburg—many officers expressed their surprise at the expertness of the men and the novelty of the performance—and one officer told Wolfe that it reminded him of what he had read of in Xenophon.—“Yes,” said Wolfe, “that is where I got the idea from—our friends here are astonished because they have not read history.”

And we see the good results of Wolfe's Light Infantry training, when we read how the gallant French Garrison seized every opportunity of making sorties, how there were frequent skirmishes, but that our men having learned a method of attacking and retreating behind hills, invariably compelled the French to retire.

I will not go further into such old history—I do not say that it was these Light Infantry methods alone which won us America, but I do claim that it was these methods and these lessons which produced the famous Light Infantry of Peninsula days.

In 1803, when Napoleon was pacing the cliffs at Boulogne, and reviewing his 9 miles of soldiers—Sir John Moore, 1803. Moore, on the opposite shore, was training the Light Division at Shorncliffe.

“No more important results,” says General Maurice—“were ever obtained in peace training for war, than those which were deduced from Sir J. Moore's experiments at Shorncliffe Camp.”

“The troops,” says Moore's brother in his biography, “were trained to exact discipline, Sir J. Moore possessed the valuable talent of instructing the officers in their duties and of rendering the soldiers expert in the use of their arms and swift at manœuvring.”

We know how Napoleon changed his mind, and moved from Boulogne to Ulm and Austerlitz.

We know how, within a day of Ulm, Nelson settled the question of invasion at Trafalgar.

Thus the Light Division were not required at home.

But we know how later, in the Peninsula, they justified the methods and training of Sir John Moore. How they bore the brunt of that retreat on Corunna—and how there was not a fight or a skirmish from Roleia to Toulouse—in which that famous Light Division did not take a distinguished part.

Then after the Peninsula came Waterloo. At Quatre Bras the old Light Division under Picton again lived up to its skirmishing

fame—but, on the limited field of Waterloo, there was little scope for such tactics.

The good Light Infantry work done in the Peninsula seems to have been lost sight of after Waterloo, and we find Sir Harry Smith regretting the fact.

"Waterloo," he writes, "for all its political glory destroyed the field movement of the British Army, so scientifically laid down by Dundas, so improved on by that hero of war and drill—Sir John Moore." All that Light Troop duty which he taught, is now replaced by heavy manœuvres, and because the Prussians and Russians do not know how to move quicker—we forsooth must adopt their ways—although Picton's division, at Quatre Bras, nobly showed what British Infantry could do, and how they could resist cavalry in any shape."

The fact is that after Waterloo, not only skirmishing but all soldiering went out of fashion—there were however those who took a keen interest—and who saw how essential it is to keep up the efficiency of the Army in peace time.

We find a book written by Colonel Gawler of the 52nd Light Infantry in which, with the weight of one who speaks from experience, he advocates the importance of skirmishing. He mentions in this book (published 1837) the same points which we with our later experience know to be still the secrets of good skirmishing—points which I will go into later on.

In the ranks he advocates "an instantaneous state of unreflecting machinery," but the skirmisher he says, and he says it at a time when to think at all was considered a crime—"the skirmisher must think for himself."

Let us now pass on some 30 years and go back to America. It is over a hundred years since the American Civil War, 1860-6. We find the great days of Wolfe. We find the great Civil war going on between North and South. A war begun between civilians and amateurs with neither experience nor discipline to help them. A war in which the Americans, prompted by their national cuteness and common sense, and taught by years of experience, became the best soldiers of their time.

How did they fight?

"As skirmishers, and modern battles," says Colonel Henderson, "are to a very great extent fought out in lines of skirmishers, they were admirable. The men realized very quickly the advantage of shelter. The advance by rushes from one cover to another, and the gradually working up by this method of the firing-line to effective range (the method which all experience shows to be the true one), this method became the general rule."

The next war we come to is very different—it is a fight between professionals—between two great rival nations whose very existence had depended for centuries on their military efficiency.

No campaign has been studied more closely than the Franco-German War of 1870.

The Germans were victorious, and from that day have been considered the authorities on war. Every move of every General, intentional or accidental, has been fully discussed, and every action, real or imaginary, of the great Von Moltke, has been quoted for future guidance. But in the study of this war, and in considering German methods, where I think so many go wrong, it is that they forget the hopeless inefficiency of the French, and they forget too, how often the mistakes of the Generals were retrieved by the splendid devotion and sense of duty of the men and of the regimental officers.

It is for this reason, that I like best to consult the Silesian Infantry Captain—Boguslavski. With his regiment he served throughout, and saw hard fighting. What he saw he noted, and thought over—and produced a book called “Tactical Deductions on the Campaign,” a book which was so far in advance of its time that it is almost up-to-date today. Skirmishing is throughout the keynote of that book.

“At Woerth, Mars la Tour, and Gravelotte,” he says, “there was a surging backwards and forwards of swarms of skirmishers on both sides, such as probably the world never saw before on the battle-field,” and later he says—“Nowadays, with very few exceptions, the swarm of skirmishers is really the only serviceable formation.”

And General Sheridan, with the reputation and the long experience won in America, he too saw the same thing. He was attached to the German Head Quarter Staff. Writing home to General Lee after the war, he confirms this Infantry Captain’s statement when he says—“One thing was especially noticeable—the scattered condition of the men when going into battle, and their scattered condition when engaged. At Gravelotte, Beaumont and Sedan the men were so scattered that the affair looked like thousands of men engaged in a deadly skirmish, without any regard to lines of formation. So far as I have been able to see, though the tactics have been good, the battles have been won by the good square fighting of the men and Regimental Officers.”

I think the Germans won their three wars too easily—their eyes were only half opened at the time to the change of conditions, and now 30 years later, their eyes are almost closed, to what Colonel Henderson calls—“The Revolution wrought by the new weapon.”

In *theory* they see the necessity for encouraging individuality, but in *practice* they rely, as Colonel Henderson says, “on the momentum of the mass rather than the skill of the individual.”

If you want German *theory*, read Von der Goltz or others—there are books and books of it—but analyzed—there is very little of use in them which can not be found far more simply and clearly expressed, in such books as—Col. Pilcher’s, or Count Sternberg’s, experiences in South Africa.

In *practice* what do we see in Germany? I was at some manœuvres in Germany last year. The Emperor was there. A hill on which I was standing was being attacked. A long regular line of

some 500 infantry, each man encumbered by 60lb. kit, lay down shoulder to shoulder, lined the crest and fired endless blank. Two young soldiers near me got into a small gravel pit a few yards out of the alignment (just the place for them). They were called back and sworn at. About 2,000 Infantry attacked this hill. On they came, regardless of cover, in a dense mob—at 300 yards from the position, the mounted officers dismounted—presently bayonets were fixed, bugles blew and drums beat and a crowd of yelling men, in very heavy marching order, jostling each other over 4 deep in places, charged and carried the position.

It is laid down in some German books that a good shout encourages the assailant and demoralizes the defender. Putting myself in the place of the defender, and judging from my own experience of such situations—I cannot say that I felt demoralised. I felt inclined to say what the American Officer said to the German officers at Pekin when he saw the “parade march” for the first time—“what sort of tomfoolery is that?”

Yes, as Colonel Henderson says, “Too little experience of war results in want of common sense and the uniformity of the drill ground in every phase of the soldier’s training. Uniformity is simple, it is easily taught, it is eminently picturesque, it has a specious appearance of power and discipline, especially when compared with the irregular movements of a swarm of skirmishers.”

“Furthermore,” he says “it is less difficult to train men to work in mass than independently, thus order, steadiness, and uniformity become a fetish; officers and men are drilled, not trained, and all individuality, however it may be encouraged by the regulations, in practice is quietly suppressed.”

I will only give one more instance from history—an episode in the Russo-Turkish war of 1878.

General Gurko was doing all he knew to capture a Turkish position at Gorni Dubnik. At 9 A.M.

Russo-Turkish War, 1878. he opened the attack with a concentrated fire from 56 guns, and with three columns of infantry. The infantry which included the Guards, the pick of the Russian Army, were launched repeatedly to the attack—they assaulted with great gallantry, but each time were driven back with heavy loss, by the Turkish fire. For hours this went on and each new assault was promptly beaten down by the Turks. At 3 P.M., after 6 hours’ fighting, Gurko called for one last simultaneous effort, but this too failed.

The Russians were now only 100 to 400 paces from the Turks. They could not advance, and they could not retire. There seemed nothing for Gurko to do, but to wait for darkness and then either assault once more or retire. But the men of the Guards took the matter into their own hands, they had tried it, Gurko’s way, and failed; they now tried it their own way. About 4 P.M., a few of the more daring sprang up and darted across to some cover in front of them; more followed this lead, and presently the game “caught on” of daring each other to dash from cover to cover. Some were shot down, but soon hundreds had worked their way right into the ditch of the Turkish redoubt. Here they were safe—for any Turk who exposed himself

to fire down into the ditch was soon shot down by the Russians covering their comrade's advance.

Dusk was setting in—the ditch was full of Russians—suddenly the Guardsmen leapt up and with one rush took the redoubt. No better comment on this episode could be found, than the words of the war correspondent—MacGahan :

“This first battle of the Russian Guard,” said he, “has proved them to be the best soldiers of the

MacGahan.

Army, because while clinging ever to the determination of carrying the redoubt, as their governing motive, they had shrewdness enough to recognise the value of cover—as a means of effecting their end with the least loss. The Guards have learnt in one day, what the infantry of the line have failed to find out in all their many fights. The Guards, the picked men of all Russia, have proved themselves better soldiers than the honest stupid soldiers of the line, in that, in a single day they have discarded all the woodenness of their parade training, and have won an important victory in the only way it was possible to obtain success, and this—the spontaneous, self-helpful initiative on the part of the soldiers—is the reason why I consider the battle of Gorni Dubnik is the most interesting piece of fighting in all the war.”

I hope that these instances from history have not been waste of your time. Perhaps they have—for whatever may be thought on the Continent—with us the importance of skirmishing is now an established fact. It is the Infantry which decides the battle, and it is by good skirmishing, as our drill book points out, that they will do it.

This fact then being granted it remains for us to see—

1. What it is the skirmisher has to do.
2. How he is to do it.
3. How we are to train him to do what he has to do.
4. Finally, when he has been trained, how are we to ensure that when left to himself in battle, he will do well?

If a man was to come and say, “What am I to do to be a good skirmisher?” What would one answer?

- I. What the skirmisher has to do.

It is a big question—too big a question to answer fully in one lecture.

The skirmisher must shoot straight, that implies the whole question of musketry. He must work with the intelligence, cunning, boldness and resolution of the scout—scouting in itself is a big subject.

The skirmisher may be attacking or defending, advancing or retiring, he may be alone or he may be one of a large swarm working together. To go fully into all these situations would draw one far from one's subject. But one great principle is common to all. There is one rule we can lay down for every skirmisher.

“He must present the smallest possible target for the shortest possible time, while at the same time doing his best to carry out his object—

A rule for all skirmishers.

whatever that object may be.”

"If you are shooting," I say, "you must do all you know to hit what you aim at, but show yourself as little as possible." If you are "scouting" you must see all you possibly can, but be seen yourself as little as possible." "If you are to attack—go in and win! intend to get there!" "If you are defending, hang on and swear to stay there—Remember Wellington's order which was carried out so well and won the battle of Waterloo. There is no other order he said, 'but to hold your ground to the last man.'"

But whether you are attacking or defending, advancing or retiring, alone or co-operating with others—remember there must be the smallest possible target exposed for the shortest possible time.

That is the way to succeed in your object—whatever your object may be. That was the secret of Wolf's Light Infantry. It was how the Russian Guardsmen succeeded at Gorni Dubnik. It is still the secret of success against the improved weapons of today, and the more weapons improve, the more rapid and accurate their fire, the more smokeless and noiseless their powder, by so much more will the importance of good skirmishing increase.

It is obvious that in order to offer a minimum of exposure, men must extend.

How to skirmish.

It is also obvious that when men are extended they are less under control as each man gets nearer the enemy, it becomes less and less possible, and finally utterly impossible for superiors to superintend and assist him. As the range, accuracy, and rapidity of fire of the rifle increase, each individual will be thrown more and more on his own resources. It will have to be left to him more and more to use his own head, to get himself to the best place, and to do his best possible toward the common end.

What that common end is, he must be clearly told and clearly understand before starting. Let us suppose it to be an attack. He must know before he starts, what point he is wanted to attack, who is going to direct on to that point, and how it is intended to carry out the attack. Probably the attack will be carried out in successive lines of skirmishers, co-operating with their fire, gradually working forward and merging in one strong firing line, which will get as near as ever it can to the enemy. This firing line may merely be required to hold the enemy in front, while the assault is delivered elsewhere, or it may be reinforced and called on to assault the position. But the individual must know how to work his way forward. How to make the most (both for firing and advancing) of accidents of ground, of walls, ditches and cover. He must realize how grass, bushes, a similarity of colour, and even the fact of remaining motionless, may afford him cover from view. He must know and decide before each start, where to go and how to get there—whether to crawl, or stalk, or crouch down, or get up and run for it. He should never give time for an aimed shot. He must realize that the positions he takes up, as he works his way forward, must depend on the good of the whole. He must not mask the fire of others, he must not crowd where there is no room, he must not lose touch, he may have to lie flat and still in the open.

He must do all he can to co-operate and keep touch, and to pass on orders and signals, so that all know what to do.

He must rally and get back to control whenever occasions arise, and remember the danger which comes from a confusion of units. All these things the skirmisher must know. There is much too he should know of the effect of fire, but this comes rather under the head of Musketry. When I was at Hythe last July, as much time almost was spent on skirmishing as on shooting, and for this reason—I suppose—that though shooting straight is the first and most important accomplishment of the Infantryman, if he cannot skirmish, he cannot get to the right place to shoot from. If he cannot take cover, he may not live to shoot twice. I must also place outside my limits such questions as the duties of leaders, control by superiors or co-operation of parties.

Next—how are we to train the skirmisher? that is the difficulty.

Infantry officers know well the difficulty of getting good intelligent skirmishing in peace time. Those too who have tried it, know how difficult it is in war. We know it is difficult, but we realize the necessity for it.

We realize how far more demoralizing it is to be shot at, today, than it was in 1870. We congratulate ourselves that our troops in South Africa, stood the test fully as well as those of 1870; but at the same time we acknowledge mistakes and see the importance of adapting our methods.

The critics on the Continent, who sneered at our troops in South Africa, do they still see visions of officers waving their swords and shouting "Vorwärts!" to masses of patriotic conscripts? can they see the real picture, officers and men crouching behind what cover they can get—unable to see—unable to hear—hit, but unable to hit back? And as they crouch behind their cover, do they see the ground before them ploughed up like dust in a tropical hail-storm? Do they picture themselves braving this storm as they make each fresh rush forward? Do they realize this going on with ever-increasing intensity for over 2,000 yards? Do they realize the difficulty of inter-communication, control and co-operation under such circumstances? It may be that in an Army of conscripts and socialists it is risky to encourage individuality. It may be that they are reluctant to face the great difficulty of a change, or it may be jealousy, but whatever the cause there are still many who refuse to acknowledge that the modern rifle has, as Col. Henderson says, "wrought a revolution". We have been taught that fact in a practical school, and are ready to face the difficulty.

Yes, it is far more difficult to train the soldier today, the duties he has to learn are more difficult, and yet the time at our disposal has been reduced. In France, they see that no time must be wasted. "Nothing", they say in their drill book, "is to be taught which is not necessary in war."

But is that not going rather far?

Is it waste of time to teach the recruit to present arms and to do it as smartly as ever he can? Is it labour lost for the Rifleman

to polish his belt? Is it a mistake for the gunner or trooper to burnish his steel?

In South Africa there were those who put smartness aside; but as a rule it was those regiments which are smartest in peace time, which fought best at the front.

When one looks at the French Army, one is inclined to doubt their wisdom in this matter.

But if we are to get men well trained, if they are to enlist for three years, if they are to be taken for guards and fatigues—we must, if only to save time, cut out of our training all that is useless. We must be as clear and as simple as possible in what we do teach—we must have good officers to teach and intelligent men to learn and besides all this we must put in more work.

I will not dwell on so unpopular a subject. I will only ask you to compare the work done by the average infantry soldier, with that done by the cavalry or artillery. Compare him with the sepoy in India, or the conscript in Germany. Compare him with the blue-jacket or with any other profession, and you must own he is not overworked, and yet work is a secret of success.

And surely if, without taking life too seriously, one could bring the average soldier to see the importance of his work—if one could remind him of those days when all England looked to the soldier in suspense—if he could be made to see that that day may come again and that he may be put to still greater tests—further, if we could see that there is a great deal in what Ruskin said—that “lost minutes now may mean lost lives (or worse, lost honour) then.”—if we could do this, without taking life too seriously—surely it should help us to work.

And again in the actual work we must appeal to the imagination. We must open the eyes of the mind. We cannot show our man the real thing, but we should try to let him see as clear a picture of it as possible. Read from the graphic accounts of Rifleman Harris, or of Archibald Forbes or Linesman or others, and see if it does not add to the interest of the training, and help to get that keenness which alone can produce the best results.

Buck the men up with accounts of good deeds done in the past. Tell them how pluck, devotion, comradeship, esprit-de-corps, loyalty and patriotism, have each before now won the day; and do not hesitate to put the other picture before them, and show them how want of such virtues has lead to defeat or dishonour. “Once you get esprit-de-corps in a ship,” said the Captain of one of the finest battleships in Malta, “once you have got that, you need not bother about the rest.” That is what he said to me, and I do firmly believe that a secret of training is to put the right sprit into all ranks.

There are details of training it is difficult to settle. “How far for instance, is it necessary to teach a man to take cover?”

In his evidence before the War Commission, Colonel Carr of the Royal Scots Fusiliers, says "he would go so far as to say that

Cover (Colonel Carr of R. S. Fus) the cover of which we hear so much, might be cut out of the drill book altogether, because when men are under fire they will take cover instinctively and that the chief difficulty is to get men to leave cover."

But I say, "Train them in every detail of taking cover—train them to use ground intelligently (they are bad at it by nature), train them to shoot from cover (it is twice as difficult—train them to manœuvre when officers and men are lying with their noses glued to the ground, it is ten times more difficult). Train them that they have got to leave cover, and that cover is only the means towards the end. When they understand and can do these things, do not worry them more; but it is risking a lot if you leave these things to their instinct when the time comes."

Another question is, how far are the Germans right in doing all their parades in marching order.

Marching is all important and the infantry soldier must be able to carry his kit; but when it comes to the actual fight, can a man skirmish with 60lb. on his back, will they not discard their kits for the attack? And if not, will not the man with the free use of his body win the day, and then be able to help himself from the kit of the enemy?

I think we are right to do these things in light order, but at the same time I think our men should have a separate kit for such work. They should have, as Count Sternberg suggests, "suitable clothes

Kit.

strengthened with leather at the knees and elbows" and further no man should be called on to skirmish with accoutrements which he may have to polish up for guard next day. How can a man take cover if he is afraid of spoiling his belt, or if he is thinking of what he calls his "compo,"—his compensation for clothing?

One more point only, the question of cavalry. I will content

Cavalry.

myself with putting one question to Cavalry. "What would you advise the skirmisher to do when he is attacked by Cavalry?" Sir Harry. Smith writing after the Peninsula and Waterloo said, that good British Infantry could resist cavalry in any shape.

Boguslavski, who saw the charge of the French Cuirassiers at Worth and many other engagements—says in his book, "Our Infantry repulsed without exception all attacks of French Cavalry, generally receiving them in lines of skirmishers, closed a little more than usual.

The Infantry weapon has made great strides since then. In spite of this, there are those, especially in France, who claim that the sword and the lance will still play havoc with infantry.

Have they any secret we do not know of? Are they depending on the non-stopping power of the bullet (a very serious question)? Have they some new tactics? Will they perhaps charge in widely extended lines and converge at full gallop on the point of attack? What is your advice to the skirmisher, what formation should we adopt if attacked by cavalry?

Lastly, how are we to ensure that when left to himself the skirmisher will do well?

There is only one way, and that is by discipline. There must be in him something of that old-time

Discipline. discipline, that "instantaneous state of unreflecting machinery," that "state when the limbs obey before the order has passed from ear to brain". Something of that instinct of obedience which is got by the steady drill and drudgery of the parade ground, and the strict observance of minute regulations and details.

But there must also be intelligence, and a good spirit. Men must understand how to combine these three. Just as they know when to put on a tunic or when to roll up their shirt sleeves and work—so they should know what is wanted of them in discipline. They must have that high order of discipline which we find in Wolfe's picked Infantry, or in Sir John Moore's Light Brigade—that discipline which made them excel, whether skirmishing or fighting shoulder to shoulder, which raised them so high that they were pointed at as models for all others to copy.

This discipline was not got by bullying and badgering the men. In an old letter of Wolfe's we find "I thank the Lord that our officers profess a sense of duty and spirit which needs no quicken-

Wolfe on discipline, 29th November 1757. ing, no urging. I explained the nature of our discipline some days ago to the Prince of Wales who is extremely desirous of being informed in such things. I told him that there was in the corps a necessary degree of obedience, joined with high spirit of service and love of duty, with which he seemed greatly pleased, knowing well that from good inclinations, joined with order and discipline, great military performances usually spring."

Neither was it by sternness and severity that Colonel Beckwith and the old 95th maintained the high discipline which elicited the praise of Cranford and Wellington. It is told how he used to let his Battalion rest, not worrying the soldiers with drills on the barrack yard parades, but rather encouraging amusements and sports which refreshed and reanimated them.

In South Africa there were those who pointed at the Boers, the Volunteers and the Irregulars, and said "Look how well they get on—they are not machines, that is why they succeed when Regulars fail."

In America, 33 years before, the same thing was said. It became the fashion to think that patriotism and intelligence could succeed without the "habit of discipline."

The "Thinking Bayonet" was more popular than the "machine made soldier". But what did the leaders of those "thinking bayonets" say?

Stonewall Jackson—the most successful of them, kept his men drilling 7 hours a day and insisted on strict attention to detail.

Lee pointed out how lives and opportunities were being lost—how panics and defeats were being courted by want of discipline. He

tried to make his men understand how obedience alone could secure health, efficiency, safety, combination and victory.

"Men," said he, "must be habituated to obey, or they cannot be controlled in battle."

And Hill, another leader, says, "There is as much need of the machine-made soldier, as of the self-reliant soldier; for the concentrated blow is always the most effective blow."

And in South Africa surely there is now no question, among experts, as to which of these two came out best.

The sportsman born, the patriot and the volunteer have much in their favour. The law-abiding, self-

Battle discipline.

respecting citizen will not break out and give trouble, but none of these without training will have that which makes the machine-made soldier (for all his fault) the best—that "*battle-discipline*" which makes him forget himself for his duty, and gives the great force of unity to large armies.

Discipline, which Sir Charles Napier calls "the backbone of soldiers," and Colonel Henderson "the life blood of armies" *that*, at its very best, is what is required to-day.

All this talk may seem Utopian ideal, and not practical. I agree

Conclusion. that too much talking is a mistake.

Talk of high ideals—may seem pearls misplaced, when we recall some of the faces we have seen in the ranks, the man with canteen written all over his features, the man with the open mouth, or the man paralyzed by the parade ground. I agree that the Army is no place for wasters.

And when one sees visions of tired men at the end of a long field-day, it may seem a mockery to talk of "darting from cover to cover."

I agree that would not be the occasion on which to call for such efforts.

But if there is anything I have learned in South Africa, it is to know and appreciate the true, great value of the British soldier on service, to see what he will do when well trained and to realize how much more can be done with one good well trained man, than any number of wasters.

Nothing in this imperfect world is perfect. It may be ideal, but still the nearer we get to the ideal,

Success.

the better will be our chance of success and success. As Wolfe says, "that is in the hands of Providence; but, he says, "it is open to every man to do his own part handsomely."

A NATIONAL CHINESE RENAISSANCE.

BY

KILWORTH.

In order to have some *locus standi* in dealing with this question, I must perforce introduce the personal element for a moment. I have but lately severed my connection with China. I have seen the country at peace and also during 1900 when she was arrayed against the world. I have seen the Chinese Government both as an outsider and as an employé; and I was able to discuss matters with the Chinese in their own tongue. It was predicted after the Chinese-Japanese war of 1895, that China would then, among other reforms, deal with her army and remodel it on western methods. How far have facts, so far, proved this theory to have been right? People drew from the analogy of the stupendous, peaceful and successful revolution of the constitution of Japan, the corollary that the same may happen in China.

What are the facts at the present moment? Nearly ten years ago Japan pricked the Chinese bubble. China should have learnt a lesson. Far from it. The Chinese still think the ways of their ancestors the best in existence, and any slight reforms which may have been instituted are merely superficial and have been forced on them by pressure from without. As soon as this pressure is relaxed, they will go back into their old ways. And what hope is there of even the present futile amount of pressure continuing, in the face of acute international jealousies among the foreign powers? There is practically no pressure or desire from within to start reform. The Reform Party consists of a few "foreign-educated" Chinese (the percentage to the population is nominal) who do desire reforms. They are used as puppets by the bigger mandarins to further private intrigues, so as to increase the power of those officials or to humble that of their opponents.

The mere knowledge of the *coup d'état* of 1898, when the Reform Party's star was in the ascendant, and even the Emperor's attention was attracted during a few brief months, should show the powerlessness of that party. For even the Emperor was imprisoned and practically dethroned on account of his connection with that party; various leaders were beheaded; and those who fled, like Kang yu Wei, only escaped death by foreign intervention and protection, and are still fugitives abroad, flitting from place to place to avoid their doom. It is impossible to argue, from the Japanese Reformation, that there may be a similar event in China. The Japanese characteristic is an intense, almost fanatically—religious,

loyalty to their country. They are desirous to learn and have a natural aptitude for assimilating foreign ideas. They have sent abroad commissions to investigate every imaginable subject—from naval and military matters even to the various forms of religion. The Japanese who are sent abroad to study are given every incentive by receiving good appointments on their return. The reforms adopted by the Japanese are instituted, because they see in them means of improving the status of their country, rather than for the sake of the reforms themselves. The Japanese are always looking forward.

The Chinese, on the other hand, do not possess loyalty to their country. They revere and love their old customs. Not because they are Chinese; but because they are those of their ancestors. They hate the foreigner—not so much because he is the possible enemy of their country, as because his ways differ from those of their ancestors, and his presence tends to necessitate change in those same ancestral customs. That is the keynote of the Chinese character—reverence for their ancestors and all that pertains to them. The Chinese are always mentally looking back. The Chinese, therefore, are loyal to the head of their clan or family, and will only be loyal to the head of the State so long as he conforms to the time-honoured usages. This fact is borne out daily. A servant cannot accompany his master unless he gets the permission of the head of his family. Failing that, he will rather throw up a lucrative job. That is why there can never be cohesion in the nation. The family or clan is the unit to be considered. Various Chinese go abroad on their own initiative to be educated. On their return, do they get good appointments, and thus any influence, so as to be in a position to bring in reforms? Never. Lest others should be encouraged to go and follow their pernicious example. Even Chinese who have been accredited as ambassadors abroad, on their return to China, do not get high appointments. It is only through the efforts of the American Minister at Peking that Wu-ting-fang, lately at Washington, has been given his present appointments.

It is a common belief among those who do not know the Chinese intimately, that there is no reason why in the next few generations China should not, if properly led, turn out of Asia every European power now holding territory there. What do recent facts show? England, Russia and Germany have seized territory where and when it has suited them, and Japan is now claiming a protectorate over a large country owning the Suzerainty of China (*vis.*, Korea), and Russia is manœuvring to obtain Manchuria—a country larger than Germany; an integral part of China; and the home of the ruling dynasty. But, it will be replied, this is due to the fact that the Chinese are not properly led. Doubtless; but where is this intelligent leader to come from? Certainly not from among the Chinese.

In 1900 the Chinese Army reinforced by religious fanatics (*i.e.*, Boxers) met foreigners of all nationalities. They made a furious attack on Tientsin. They were numerically superior; the troops were drawn largely from the "foreign drilled" contingent; and they

possessed a great superiority in guns. On the other side was an unfortified commercial town defended at first by civilians, and later by small reinforcements of soldiers and sailors of many nationalities. Could a force have been less homogenous? Speaking many different languages, trained in different methods of drill and tactics, subject to inevitable international jealousies and hampered by private disagreements among the commanders; and yet they managed to withstand the most determined attacks by the Chinese. Those Chinese, many of them, wrought up into religious fervour, and firmly believing that the bullets of the foreigners could not harm them, but would turn to water—until they were disillusioned practically! At Peking were a number of civilians, women and children, a few Legation guards, and numerous Chinese refugees, all of whom were suffering from the same international disabilities as the inhabitants of Tientsin. They had hardly any guns, little ammunition for those they did possess, and only defences improvised after the attack had begun. They were in the midst of a populous city and surrounded by houses, close at hand, on all sides. On the other hand the Chinese possessed plenty of men, guns and ammunition; a commanding position on the 40 foot Tartar City wall, overlooking the Legation quarter at short range, and also numerous high towers built on the walls themselves. They could approach anywhere under cover to within 100 yards of the Legation defences, and often closer, and then could fire at their leisure through loop-holed walls. And yet they could not manage to rush the Legations. I grant you that counsels were much divided among the Chinese authorities. But there was a very large and powerful party earnestly desiring the destruction of the Legation.

Where do these troops show signs of possessing qualities which would make them the "best troops in the world"? They did not possess the physical courage to make one rush, in their hundreds, across a few yards of open ground, in order to overwhelm an extended line of weak defences held by men, weakened by privations and anxiety and unused, largely, to fighting. Nor did they possess any leaders who could get them to carry out this rush. The reason is not far to seek. The Chinese, by instinct and throughout history, have sincerely despised the naval or military career. That is why we see a civil mandarin made a General or an Admiral. According to Chinese notions any civil official is capable of undertaking a naval or military command, and, moreover, without any previous training. It is, of course, only accepted because it will give better chance of "squeeze" than the present berth occupied by the civil official. "You would as soon use the best steel to make a key, as a good man to make a soldier" is a Chinese proverb. We consider the men who lay down their lives for their country more or less as heroes. They dump the deceased soldier in any bit of waste land to save expense—unless the relatives take over the body and provide a funeral. Neither officers nor men have any pride in their profession. They lack the enthusiasm of patriotism, be they soldiers, or be they civilians. There is hardly a decent leader or a self-respecting soldier to be found. Do Lord Wolseley and others think they can change the national genius of such a people with the wave of a wand—in "two or

three years" forsooth! Every instinct they possess is against change as change, and especially against the changes necessary to modernise their army. For does it not conflict with ancestral worship? Long before such a change can come over the land, China will have dissolved into space and ceased to exist as a nation, a victim to partition.

They seem to forget the—to us—extraordinary decentralisation which exists in the Government of China. The Viceroy of a province as long as he keeps down rebellion, pays the required tribute to the central government, and does not become so powerful as to alarm the Peking officials, can do almost anything in his province. He can tax his people as much as *he* likes or *they* will stand. He can have as large, or as small, an army as he likes, so long as he fulfils the conditions just mentioned. The army may consist of any branch, in any proportion he pleases; and he may arm them with any weapon which may take his fancy. He is equally free in the terms of service, pay, promotion, or uniform. The Tai-ping Rebellion may occur to us as an example of what the Chinese can do when well led. But the Chinese believed Gordon possessed magical powers, and so his followers really attacked ill-led, undisciplined mobs of their own compatriots, and defeated them. At present the army in each province owes allegiance theoretically to the Emperor; but practically to the local governor. Suppose orders are sent to a Viceroy to mobilise his army against a certain enemy. If it does not suit him, or if he has been paid by the enemy; and if he thinks he is strong enough to defy the central government—this largely varies with the distance he is from Peking—he will certainly send some excuse to headquarters and will not attack the enemy. How then can China as a whole have a homogeneous army in the countless myriads imagined by many sweeping all before them.

It may seem that I have unduly enlarged on the deficiencies of the Chinese in their army. But I have merely taken it as an example of the futility of trying to introduce reform in China, until they have abandoned the ultra-conservatism engendered by their cult of ancestral worship and all that it implies. The attempt at reforming the navy has been just as great a failure. England sent specially selected men to attempt this herculean task. When the fleet was practically tested in 1894, it failed miserably. The Chinese officers were terror-stricken; the shells were deficient in powder charges and mismanagement reigned supreme. That the British officers failed is no slur on them; for they were trying to achieve the impossible. It is all very well to say that the Government, if re-modelled on modern lines, could be properly administered and thus China could become a great power; but who can break down the Chinese characteristics? It is open to many men to introduce the personal element, like Gordon, and then, by working on Chinese lines, to produce certain results. But the moment signs are noticed of the would-be reformer working on other than Chinese lines, he is, by hook or by crook, got rid of and any good effect that he may have achieved will disappear with its originator in a fraction of the time that he has taken to bring about that effect. And reform on Chinese

lines can be no real reform. To the novice it seems as if reforms were perpetually about to be introduced. He reads, in what is the oldest daily periodical in the world, the Peking Government Gazette, an Imperial edict introducing, in fervid language, a reform, or abolishing (*sic*) an abuse. It seems almost impossible to the western mind that an official gazette may be, and often is in all seriousness, meant to be disregarded. Why publish it? The reasons are various. In the case of reforms, it often is necessary for the Court to publish a decree in order to quiet the troublesome demands of a Foreign minister, or of some influential mandarin who, it is known, is backed by some Legation. It must also be remembered that the tenets of Confucius and the other "sages" are of high ethical value, mostly obeyed rather in the breach, than in the observance it is true; but still it is "good form" to quote them. When, further, it is remembered that the Emperor occupies a distinct place in the theology of the Chinese, it is easy to understand that periodically the Peking Government publishes sententious decrees abolishing corruption, or enjoining zeal, among the mandarinates. It harms no one, for nobody will pay any attention, and it looks well! Nobody in China pays attention to what is *said* by the Chinese. It is necessary to hunt about and conjecture what they really *mean*, and that is where the foreigner loses all grasp of the situation. It is so extremely difficult to judge what is in the mind of a Chinese. Their minds and our minds work, as it were, on different planes. And indeed, we are often just as much an enigma to the Chinese, as they may be to us. Starting with certain premises, foreigners will arrive at some apparently obvious conclusion. But the Chinese will arrive at, to them, an equally obvious conclusion, but probably diametrically opposed to what the foreigners had arrived at. This is the reason why so many and varied opinions are held as to the Chinese question. It is futile for a bird of passage, such as a journalist, to go to China, and then after a short stay, to form his conclusions. In no country is it more true that "appearances are deceptive."

There is only one chance of bringing about a Chinese Renaissance—and that is not within the scope of practical politics. If some power—Japan for choice as being more akin to China and the cost of the Japanese salaries being far less than that of Europeans, were given a mandate by the powers, and also a free hand; then in the course of many years some impression might be made on Chinese customs. But, as I have said, this is not within practical politics. International jealousies are rife. As soon as the Chinese appoint a foreigner with the idea of starting some reform at the instance of some particular Legation, the Legations who are its political opponents, immediately combine, first to oust the intruder, second to have the mandarin responsible for the appointment, brought into disgrace by means of the intrigues of his Chinese opponents, and third to neutralise all the work (and thereby any influence he may have acquired) of the foreigner concerned.

Thus we see that a national Renaissance cannot come from within; that it is stopped from coming from without both by the Chinese themselves and by the international rivalry which exists, and

so we come to the inevitable conclusion that it will not come at all. The only policy for those powers who are interested in the maintenance of the *status quo*, is to bolster up, as far as possible, this unwieldy and inert mass of atoms and to put off, as long as possible, the day when active disintegration will set in. That day, be it far or be it soon, must come ; and then will come about the partition of China. The Chinese will make the best of subjects. They are naturally a law-abiding, peace-loving, thrifty, industrious, and intensely commercial race. All they want is to be left alone ; to be allowed to trade, and to be given justice. But these qualities, even under the stimulating effect of Western civilisation under the various foreign governments, will not make the race combine to throw off the foreign yoke. Their lack of loyalty, as we understand it, and their want of homogeneity, will still further retard them from any hostile combination. Then the Chinese, under the ægis of the different powers, will wake up and accept our civilisation. But this will not be a national Chinese Renaissance.

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THE INSTRUCTION IN, AND THE IMPORTANCE OF,
"RAPID PRELIMINARY FORMATIONS" IN THE
TRAINING OF INFANTRY.

Sir Locke Elliot and Gentlemen—

Colonel Woollcombe in his recent lecture at the B. P. R. A. Meeting at Meerut said (and I would ask you, gentlemen, to weigh each line of the quotation as it contains the subject of a lecture in itself), "We have learnt that widely extended formations are nowadays necessary, but I have often seen this idea misapplied, and a thin, extended line imagining it is possible to capture a position strongly held. The extension is for the purpose of getting over the ground. Fire effect, in the face of strong opposition, can only be attained by the use of the largest number of rifles it is possible to employ at a time. Far greater actual and moral effect will be produced by the sudden outburst of fire from a large number of rifles, than from a slow drawn out fire from a few men in an extended line.

We do not get to fire-discipline and fire-direction without a great deal of careful preliminary drill and training."

No one will dispute, gentlemen, that we cannot get over ground without "Extended Formations," and also that preliminary drill and training are necessary for perfection in fire-discipline and fire-direction. I repeat no one will dispute that, but, what I wish to try and show to-night is, that equal importance attaches to the preliminary training of "Rapid Formations" to get over ground in extended order.

Now, before I go any further I wish you to understand that I do not desire to convey the impression that I am in favour of any set form of stereotyped attack for infantry. We all now know that, not only is a set formation for attack not feasible, but it is absolutely forbidden. The drill book says, "Although such system might appear capable of modification to meet different conditions, yet, constant practice in a stereotyped formation inevitably leads to want of elasticity, accustoms all ranks to work by rule rather than by the exercise of their wits, and cramps both initiative and intelligence. In peace exercises, where blank cartridges take the place of bullets, the inherent and paralysing defects of a normal system may easily escape notice; in war they betray themselves in waste of life and failure. It is therefore strictly forbidden either to formulate or to practise a normal form of either attack or defence. To the training of the troops in movements before the enemy, general principles and broad rules alone are applicable; and the practical knowledge of these principles and rules can only be instilled by intelligent instruction and constantly diversified exercises on broken ground."

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I do not know how those present interpret the paragraph I have quoted, but, I have met many officers who say it means, "that you can act just as you please from start to finish in an attack." Now, I contend, they are wrong there. The book clearly brings you to the starting point. It speaks of general principles and broad rules and, in fact, Part 4 is full of rules and details, and then in section 217 the book clearly lays down the distribution at the start. It lays down three distinct bodies. The 1st, to develop the attack, divided into scouts and firing line, the 2nd to reinforce, and 3rd, to keep "up your sleeve." In other words, the book brings you to the starting post, and, what I contend is, that, if we all are to start from one common starting point, we must then have one set form of "Preliminary Formation," and specially so, when acting in Brigade with an allotted frontage and a combined task with one or more other corps. I admit that as it is, things pan out all right, but there is a good deal of chaos in the beginning, and not one regiment has the faintest idea how its neighbour will start off. The matter is considered a detail, one that does not come within the province of a Brigadier, and is left to unit Commanders. In some commands they start off in lines of Double Company Column. This I think is wrong, for your strength is too equalised and your Firing Line gets too thick. I cannot see with such a formation how, in a limited frontage, you are going to get your men widely extended in front, as is often necessary. Moreover, I contend that it is vital that every regiment should be trained to assume this "Preliminary Formation" from any formation it may happen to be in at the moment, that is, from Line, or when in Column of Route, or from Quarter Column, or from Echelon, or, where it best adapts itself, from that excellent modern formation called "Assembly Formation." I know, gentlemen, "Assembly Formation" is much abused, but has it never struck you that it is a formation that calls forth much more brain power in the Company Commander than in the old Quarter Column Drill, where it more or less fell on the Commanding Officer? I admit the formation needs a change of organization, that is, the sections should be fairly strong as in the German Army, but still, the fact, in my humble opinion, remains, that it is an excellent formation, and one that lends itself to Battalion Drill as laid down in Infantry Training. It certainly does not lend itself to our old fashioned Battalion Drill, but that is now all exploded and comes under the head of "Savage Warfare, or, Ceremonial Drill." I repeat that not only should a regiment be able to form "Preliminary Formation" from any formation that it may happen to be in at the moment, but, it is absolutely vital that it should be able to do this by a regimental signal, rapidly, and within the same limit of time that a smart battery will unlimber and come into action.

Now what is "Preliminary Formation," or, as it is called in "Infantry Training" of 1902 "Preliminary Measures in the Attack." Gentlemen, it is nothing new, nothing original I have to offer you, probably you are all well acquainted with it, and all I wish to dwell

Lastly, how are we to ensure that when left to himself the skirmisher will do well?

There is only one way, and that is by discipline. There must be in him something of that old-time discipline, that "instantaneous state

of unreflecting machinery," that "state when the limbs obey before the order has passed from ear to brain". Something of that instinct of obedience which is got by the steady drill and drudgery of the parade ground, and the strict observance of minute regulations and details.

But there must also be intelligence, and a good spirit. Men must understand how to combine these three. Just as they know when to put on a tunic or when to roll up their shirt sleeves and work—so they should know what is wanted of them in discipline. They must have that high order of discipline which we find in Wolfe's picked Infantry, or in Sir John Moore's Light Brigade—that discipline which made them excel, whether skirmishing or fighting shoulder to shoulder, which raised them so high that they were pointed at as models for all others to copy.

This discipline was not got by bullying and badgering the men. In an old letter of Wolfe's we find "I thank the Lord that our officers profess a sense of duty and spirit which needs no quickening."

Wolfe on discipline, 27th November 1757. I explained the nature of our discipline some days ago to the Prince of Wales who is extremely desirous of being informed in such things. I told him that there was in the corps a necessary degree of obedience, joined with high spirit of service and love of duty, with which he seemed greatly pleased, knowing we that from good inclinations, joined with order and discipline, great military performances usually spring."

Neither was it by sternness and severity that Colonel Beckwith and the old 95th maintained the high discipline which elicited the praise of

Cranford and Wellington. It is told how he used to let his Battalion rest, not worrying the soldiers with drills on the barrack yard parades, but rather encouraging amusements and sports which refreshed and reanimated them.

In South Africa there were those who pointed at the Boers, the Volunteers and the Irregulars, and said "Look how well they get on—they are not machines, that is why they succeed when Regulars fail."

In America, 33 years before, the same thing was said. It became the fashion to think that patriotism and intelligence could succeed without the "habit of discipline."

The "Thinking Bayonet" was more popular than the "machine made soldier". But what did the leaders of those "thinking bayonets" say?

Stonewall Jackson—the most successful of them, kept his men drilling 7 hours a day and insisted on strict attention to detail.

Lee pointed out how lives and opportunities were being lost—how panics and defeats were being courted by want of discipline. He

tried to make his men understand how obedience alone could secure health, efficiency, safety, combination and victory.

"Men," said he, "must be habituated to obey, or they cannot be controlled in battle."

And Hill, another leader, says, "There is as much need of the machine-made soldier, as of the self-reliant soldier; for the concentrated blow is always the most effective blow."

And in South Africa surely there is now no question, among experts, as to which of these two came out best.

The sportsman born, the patriot and the volunteer have much in their favour. The law-abiding, self-

Battle discipline.

respecting citizen will not break out

and give trouble, but none of these without training will have that which makes the machine-made soldier (for all his fault) the best—that "*battle-discipline*" which makes him forget himself for his duty, and gives the great force of unity to large armies.

Discipline, which Sir Charles Napier calls "the backbone of soldiers," and Colonel Henderson "the life blood of armies" *that*, at its very best is what is required to-day.

All this talk may seem Utopian ideal, and not practical. I agree that too much talking is a mistake.

Conclusion.

Talk of high ideals—may seem pearls misplaced, when we recall some of the faces we have seen in the ranks, the man with canteen written all over his features, the man with the open mouth, or the man paralyzed by the parade ground. I agree that the Army is no place for wasters.

And when one sees visions of tired men at the end of a long field-day, it may seem a mockery to talk of "darting from cover to cover."

I agree that would not be the occasion on which to call for such efforts.

But if there is anything I have learned in South Africa, it is to know and appreciate the true, great value of the British soldier on service, to see what he will do when well trained and to realize how much more can be done with one good well trained man, than any number of wasters.

Nothing in this imperfect world is perfect. It may be ideal, but still the nearer we get to the ideal,

Success.

the better will be our chance of success

and success. As Wolfe says, "that is in the hands of Providence; but, he says, "it is open to every man to do his own part handsomely."

A NATIONAL CHINESE RENAISSANCE.

BY

KILWORTH.

In order to have some *locus standi* in dealing with this question I must perforce introduce the personal element for a moment. I have but lately severed my connection with China. I have seen the country at peace and also during 1900 when she was arrayed against the world. I have seen the Chinese Government both as an outsider and as an employé; and I was able to discuss matters with the Chinese in their own tongue. It was predicted after the Chinese-Japanese war of 1895, that China would then, among other things, deal with her army and remodel it on western methods. How far have facts, so far, proved this theory to have been right? I have drawn from the analogy of the stupendous, peaceful and successful revolution of the constitution of Japan, the corollary that the same may happen in China.

What are the facts at the present moment? Nearly ten years ago Japan pricked the Chinese bubble. China should have learned a lesson. Far from it. The Chinese still think the ways of their ancestors the best in existence, and any slight reforms which have been instituted are merely superficial and have been forced on them by pressure from without. As soon as this pressure is relaxed they will go back into their old ways. And what hope is there, even the present futile amount of pressure continuing, in the face of acute international jealousies among the foreign powers? There is practically no pressure or desire from within to start reform. The Reform Party consists of a few "foreign-educated" Chinese (the percentage to the population is nominal) who do desire reform. They are used as puppets by the bigger mandarins to further private intrigues, so as to increase the power of those officials or to humiliate that of their opponents.

The mere knowledge of the *coup d'état* of 1898, when the Reform Party's star was in the ascendant, and even the Emperor's attention was attracted during a few brief months, should show the powerlessness of that party. For even the Emperor was imprisoned and practically dethroned on account of his connection with that party; various leaders were beheaded; and those who fled, like Kang yü Wei, only escaped death by foreign intervention and a d protection, and are still fugitives abroad, flitting from place to place to avoid their doom. It is impossible to argue, from the Japanese Reformation, that there may be a similar event in China. The Japanese characteristic is an intense, almost fanatically—religious

loyalty to their country. They are desirous to learn and have a natural aptitude for assimilating foreign ideas. They have sent abroad commissions to investigate every imaginable subject—from naval and military matters even to the various forms of religion. The Japanese who are sent abroad to study are given every incentive by receiving good appointments on their return. The reforms adopted by the Japanese are instituted, because they see in them means of improving the status of their country, rather than for the sake of the reforms themselves. The Japanese are always looking forward.

The Chinese, on the other hand, do not possess loyalty to their country. They revere and love their old customs. Not because they are Chinese; but because they are those of their ancestors. They hate the foreigner—not so much because he is the possible enemy of their country, as because his ways differ from those of their ancestors, and his presence tends to necessitate change in those same ancestral customs. That is the keynote of the Chinese character—reverence for their ancestors and all that pertains to them. The Chinese are always mentally looking back. The Chinese, therefore, are loyal to the head of their clan or family, and will only be loyal to the head of the State so long as he conforms to the time-honoured usages. This fact is borne out daily. A servant cannot accompany his master unless he gets the permission of the head of his family. Failing that, he will rather throw up a lucrative job. That is why there can never be cohesion in the nation. The family or clan is the unit to be considered. Various Chinese go abroad on their own initiative to be educated. On their return, do they get good appointments, and thus any influence, so as to be in a position to bring in reforms? Never. Lest others should be encouraged to go and follow their pernicious example. Even Chinese who have been accredited as ambassadors abroad, on their return to China, do not get high appointments. It is only through the efforts of the American Minister at Peking that Wu-ting-fang, lately at Washington, has been given his present appointments.

It is a common belief among those who do not know the Chinese intimately, that there is no reason why in the next few generations China should not, if properly led, turn out of Asia every European power now holding territory there. What do recent facts show? England, Russia and Germany have seized territory where and when it has suited them, and Japan is now claiming a protectorate over a large country owning the Suzerainty of China (*vis.*, Korea), and Russia is manœuvring to obtain Manchuria—a country larger than Germany; an integral part of China; and the home of the ruling dynasty. But, it will be replied, this is due to the fact that the Chinese are not properly led. Doubtless; but where is this intelligent leader to come from? Certainly not from among the Chinese.

In 1900 the Chinese Army reinforced by religious fanatics (*i.e.*, Boxers) met foreigners of all nationalities. They made a furious attack on Tientsin. They were numerically superior; the troops were drawn largely from the "foreign drilled" contingent; and they

possessed a great superiority in guns. On the other side was an unfortified commercial town defended at first by civilians, and later by small reinforcements of soldiers and sailors of many nationalities. Could a force have been less homogenous? Speaking many different languages, trained in different methods of drill and tactics, subject to inevitable international jealousies and hampered by private agreements among the commanders; and yet they managed to withstand the most determined attacks by the Chinese. Those Chinese many of them, wrought up into religious fervour, and firmly believing that the bullets of the foreigners could not harm them, but would fall to water—until they were disillusioned practically! At Peking were a number of civilians, women and children, a few Legation guards, and numerous Chinese refugees, all of whom were suffering from the same international disabilities as the inhabitants of Tientsin. They had hardly any guns, little ammunition for those they did possess, and only defenses improvised after the attack had begun. They were in the midst of a populous city and surrounded by houses, close at hand on all sides. On the other hand the Chinese possessed plenty of men, guns and ammunition; a commanding position on the Tartar City wall, overlooking the Legation quarter at short range, and also numerous high towers built on the walls themselves. They could approach anywhere under cover to within too yards of the Legation defenses, and often closer, and then could fire at their leisure through loop-holed walls. And yet they could not manage to rush the Legations. I grant you that counsels were much divided among the Chinese authorities. But there was a very large and powerful party earnestly desiring the destruction of the Legations.

Where do these troops show signs of possessing qualities which would make them the "best troops in the world"? They do not possess the physical courage to make one rush, in their hundreds, across a few yards of open ground, in order to overwhelm an extended line of weak defenses held by men, weakened by privations and anxiety and unused, largely, to fighting. Nor do they possess any leaders who could get them to carry out this rush. The reason is not far to seek. The Chinese, by instinct and tradition, history, have sincerely despised the naval or military career. That is why we see a civil mandarin made a General or an Admiral. According to Chinese notions any civil official is capable of undertaking a naval or military command, and, moreover, without any previous training. It is, of course, only accepted because it will give better chance of "squeeze" than the present berth occupied by the civil official. "You would as soon use the best steel to make a key, as a good man to make a soldier" is a Chinese proverb. We consider the men who lay down their lives for their country more or less as heroes. They dump the deceased soldier in any bit of waste land to save expense—unless the relatives take over the body and provide a funeral. Neither officers nor men have any pride in their profession. They lack the enthusiasm of patriotism, be they soldiers, or be they civilians. There is hardly a decent leader of a self-respecting soldier to be found. Do Lord Wolseley and others think they can change the national genius of such a people with the wave of a wand—in time?

three years" forsooth! Every instinct they possess is against change as change, and especially against the changes necessary to modernise their army. For does it not conflict with ancestral worship? Long before such a change can come over the land, China will have dissolved into space and ceased to exist as a nation, a victim to partition.

They seem to forget the—to us—extraordinary decentralisation which exists in the Government of China. The Viceroy of a province as long as he keeps down rebellion, pays the required tribute to the central government, and does not become so powerful as to alarm the Peking officials, can do almost anything in his province. He can tax his people as much as *he* likes or *they* will stand. He can have as large, or as small, an army as he likes, so long as he fulfils the conditions just mentioned. The army may consist of any branch, in any proportion he pleases; and he may arm them with any weapon which may take his fancy. He is equally free in the terms of service, pay, promotion, or uniform. The Tai-ping Rebellion may occur to us as an example of what the Chinese can do when well led. But the Chinese believed Gordon possessed magical powers, and so his followers really attacked ill-led, undisciplined mobs of their own compatriots, and defeated them. At present the army in each province owes allegiance theoretically to the Emperor; but practically to the local governor. Suppose orders are sent to a Viceroy to mobilise his army against a certain enemy. If it does not suit him, or if he has been paid by the enemy; and if he thinks he is strong enough to defy the central government—this largely varies with the distance he is from Peking—he will certainly send some excuse to headquarters and will not attack the enemy. How then can China as a whole have a homogeneous army in the countless myriads imagined by many sweeping all before them.

It may seem that I have unduly enlarged on the deficiencies of the Chinese in their army. But I have merely taken it as an example of the futility of trying to introduce reform in China, until they have abandoned the ultra-conservatism engendered by their cult of ancestral worship and all that it implies. The attempt at reforming the navy has been just as great a failure. England sent specially selected men to attempt this herculean task. When the fleet was practically tested in 1894, it failed miserably. The Chinese officers were terror-stricken; the shells were deficient in powder charges and mismanagement reigned supreme. That the British officers failed is no slur on them; for they were trying to achieve the impossible. It is all very well to say that the Government, if re-modelled on modern lines, could be properly administered and thus China could become a great power; but who can break down the Chinese characteristics? It is open to many men to introduce the personal element, like Gordon, and then, by working on Chinese lines, to produce certain results. But the moment signs are noticed of the would-be reformer working on other than Chinese lines, he is, by hook or by crook, got rid of and any good effect that he may have achieved will disappear with its originator in a fraction of the time that he has taken to bring about that effect. And reform on Chinese

lines can be no real reform. To the novice it seems as if reforms were perpetually about to be introduced. He reads, in what is the oldest daily periodical in the world, the Peking Government Gazette, an Imperial edict introducing, in fervid language, a reform, or abolishing (*sic*) an abuse. It seems almost impossible to the western mind that an official gazette may be, and often is, in all seriousness, meant to be disregarded. Why publish it? The reasons are various. In the case of reforms, it often is necessary for the Court to publish a decree in order to quiet the troublesome demands of a Foreign minister, or of some influential mandarin who, it is known, is backed by some Legation. It must also be remembered that the tenets of Confucius and the other "sages" are of high ethical value, mostly obeyed rather in the breach, than in the observance it is true, but still it is "good form" to quote them. When, further, it is remembered that the Emperor occupies a distinct place in the theology of the Chinese, it is easy to understand that periodically the Peking Government publishes sententious decrees abolishing corruption, and enjoining zeal, among the mandarinates. It harms no one, for nobody will pay any attention, and it looks well! Nobody in China pays attention to what is *said* by the Chinese. It is necessary to talk about and conjecture what they really *mean*, and that is where the foreigner loses all grasp of the situation. It is so extremely difficult to judge what is in the mind of a Chinese. Their minds and hearts work, as it were, on different planes. And indeed, we are often just as much an enigma to the Chinese, as they may be to us. Starting with certain premises, foreigners will arrive at some apparently obvious conclusion. But the Chinese will arrive at, to them, an equally obvious conclusion, but probably diametrically opposed to what the foreigners had arrived at. This is the reason why so many and varied opinions are held as to the Chinese question. It is futile for a bird of passage, such as a journalist, to go to China, and, then after a short stay, to form his conclusions. In no country is it more true that "appearances are deceptive."

There is only one chance of bringing about a Chinese Renaissance—and that is not within the scope of practical politics. If some power—Japan for choice as being more akin to China and the cost of the Japanese salaries being far less than that of Europeans, were given a mandate by the powers, and also a free hand; then in the course of many years some impression might be made on Chinese customs. But, as I have said, this is not within practical politics. International jealousies are rife. As soon as the Chinese appoint a foreigner with the idea of starting some reform at the instance of some particular Legation, the Legations who are its political opponents, immediately combine, first to oust the intruder, second to have the mandarin responsible for the appointment, brought into disgrace by means of the intrigues of his Chinese opponents, and third to neutralise all the work (and thereby any influence he may have acquired) of the foreigner concerned.

Thus we see that a national Renaissance cannot come from within; that it is stopped from coming from without both by the Chinese themselves and by the international rivalry which exists, and

so we come to the inevitable conclusion that it will not come at all. The only policy for those powers who are interested in the maintenance of the *status quo*, is to bolster up, as far as possible, this unwieldy and inert mass of atoms and to put off, as long as possible, the day when active disintegration will set in. That day, be it far or be it soon, must come; and then will come about the partition of China. The Chinese will make the best of subjects. They are naturally a law-abiding, peace-loving, thrifty, industrious, and intensely commercial race. All they want is to be left alone; to be allowed to trade, and to be given justice. But these qualities, even under the stimulating effect of Western civilisation under the various foreign governments, will not make the race combine to throw off the foreign yoke. Their lack of loyalty, as we understand it, and their want of homogeneousness, will still further retard them from any hostile combination. Then the Chinese, under the ægis of the different powers, will wake up and accept our civilisation. But this will not be a national Chinese Renaissance.

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Now what is "Preliminary Formation," or, as it is called in "Infantry Training" of 1902 "Preliminary Measures in the Attack." Gentlemen, it is nothing new, nothing original I have to offer you, probably you are all well acquainted with it, and all I wish to dwell

on to-night is, its importance and soundness, and that we should be able to do it very rapidly. It is simply the Battalion Drill of the present day, that is "Rapid Formations of Lines of Columns" from any formation, the front lines being weak, the rear lines strong, and capable of being by a signal divided into as many more lines and waves in its advance as the commander may consider necessary, that is as long as they are under his control.

Now though, I say, I speak of ordinary Battalion Drill of the present day, a drill, which paragraph 203 of "Infantry Training" tells you, you should constantly practice, I assure you many and many a regiment does not consider this the Battalion Drill of the present day; they hammer away at the old Drill we had which is now "Savage Warfare," and dislike the "Assembly Formation" because it does not lend itself to it. I think it is pity that $\frac{1}{4}$ column was not reserved for Savage Warfare, as it would keep "en evidence" before a Commanding Officer what he was practising. We Infantry men have much to learn from the excellent way in which Cavalry now work when on foot, they are at an advantage in not being trammelled with the knowledge of close formation Battalion Drill.

Again I say, though the subject of my lecture is nothing new, I question whether I should not have to give a lot of explanation as to what I wanted, if I required a couple of battalions to adopt "Preliminary Formations" to develop my attack.

Now let us look at a specimen of the usual cut and dried attack orders for a Brigade taken from Griepenkur's examples.

You are given the information of the position, or approach of the enemy in detail, next of your own, or other troops. The general intentions of the General Officer Commanding showing nature, direction, and points of attack; then the orders for the artillery. Now follows the orders for the attack, for example: "The Oxford Light Infantry will make the Secondary attack on both sides of the Great Western Road. The main attack will be made through Cordery Wood along the ridge south of Star, by the 2nd West Kent regiment and 1st Durham Light Infantry, Commander Colonel Smith; Objective, Holly Cottages"—and then follow the orders for the Reserves and Cavalry, etc. Now what happens as regards Colonel Smith who commands the main attack, with *simply his route and objective given to him?* He starts giving orders; then follow the Commanding Officers with their orders, Company commanders with theirs, and so on a string of orders, boards, and committees. Now all Colonel Smith wants is to "develop the attack," and hence if he gave the order "Preliminary Formation," extent of frontage, and direction it is all that is necessary, but, would these two battalions know what he was talking about, if they had not been trained to the subject of my lecture, and, which, as I say, is already more or less in the book?

"Preliminary Formation" is a formation that avoids the premature admixture of tactical units, and the surrender at an unnecessarily early period of the control of the Firing Line. The lines must be preceded by Scouts. You may have your advanced guard and its Scouts, but a column in forming into line of columns, or as I call

it " Preliminary Formations," should have its own independent Scouts to mop up the ground, and, here in passing, I would like to say a word in regard to Scouts. You will all admit they are very valuable men, it is only a small percentage of men that naturally adapt themselves to the work, and it is a very hard and thankless game for the poor soldier man. Well now, firstly, you will admit Scouts should work in pairs, the reason is obvious, but what I would like to ask is, " What should you do with your Scouts when an action has begun " ? Many Commanding Officers say, let them go on with the Firing Line, that is, let them go on where they run most risk of being shot, and I suppose section 219 can be quoted to bear this out ; it says : " The duties of the Firing Line are in the first instance to act as a support to, and if necessary, to provide reinforcement for the Scouts." I say no, they are too valuable, and when the firing line has reinforced, the Scouts should halt, they have taken their risks and done their show of the work, and moreover, a Scout can never do this work effectively if he keeps perpetually on the move, these men have been running on at top speed, halting and observing for a movement of the enemy, and showing the way, just as you would stop and look up at a tree and wait for the movement of a leaf to mark a small bird in it. You would observe nothing if you did not stop and watch, and I repeat these valuable men have had a very hard time of it, therefore they should take no more risks and drop back.

Well, as I have said, the Scouts mop up the front and flanks rapidly, and the regiment gets into " Preliminary Formations." We will discuss an example of it when the regiment is moving along a road in column of fours. Some here will say, but a battalion in an enemy's country should never be in column of fours, march them in open column of fours, or if you must defile, have them in column of sections, ready to extend on the moment ; quite right, gentlemen, but if you were ordered from here, I expect you would march on the road a good bit of the way, and be in column of fours, and trust to your advanced guard. Let us presume that a regiment so moving under the impression that the ground is cleared up by the advanced guard and all is safe, suddenly finds itself fired on by distant guns. Well I believe some regiments will give the order " Scatter in front and rear," this may be quickly done, but I question whether the Commanding Officer will know how his regiment is distributed ; there is a lot of delay before this regiment continues its advance. This may be very vital, for infantry should always skirmish and go straight for guns. Guns cannot do well-extended Infantry, coming on in waves, much damage, unless the guns themselves are strongly supported by infantry. Now if a regiment is trained to adopt this " Preliminary Formation " on the moment, I do not see why the guns should delay its advance at all. The Commanding Officer gives a whistle signal, say, four clear distinct whistles, which, to avoid any confusion, no one should repeat on the whistle, but, by word of mouth only. The signal means " Form lines of columns ", or " Preliminary Formation ". The regiment, as I said, was in column of fours. The leading company doubles away to the flanks, Right Half Company to the right, Left

Half to the left, forming section columns, each of the outer sections get into rank entire and the inner sections in support behind them.

There is your first line all lying down 50 or 100 yards at the outside from where they were when the signal was given. The Scouts meanwhile have flown out in all directions.

We will presume that the battalion was 8 companies strong and had sent out one company as an advance guard. That leaves 7 companies. No. 2 company is leading the column of fours. It, as I have shown, forms a first line on the signal. Then the remaining companies of the Right Half Battalion form the 2nd Line. They get into column of sections. No. 3 Company on the right, No. 4 on the left of the road. And the Left Half Battalion forms the 3rd line or Reserve, as in Plate I, and connecting links place themselves in position. Now here you have your 3 lines all lying on the ground and looking to the Commanding Officer for further signal. He can advance them onward at any intervals of depth he likes, and divide up the 2nd line into as many waves as he chooses. The 3rd line can follow at whatever interval he chooses, or, if he likes he can by another signal cause all the three lines (or any special line he selects) to extend and advance on, at the distances between the lines they now occupy, or, as I have said, regulate it to any thing he likes.

Now let us look at the same formation done from "Assembly Formation" as shewn in Plate II. Here you have the leading sections of 1, 2, 3, 4 companies shooting out Scouts and themselves forming into rank entire and constituting the 1st line of advance.

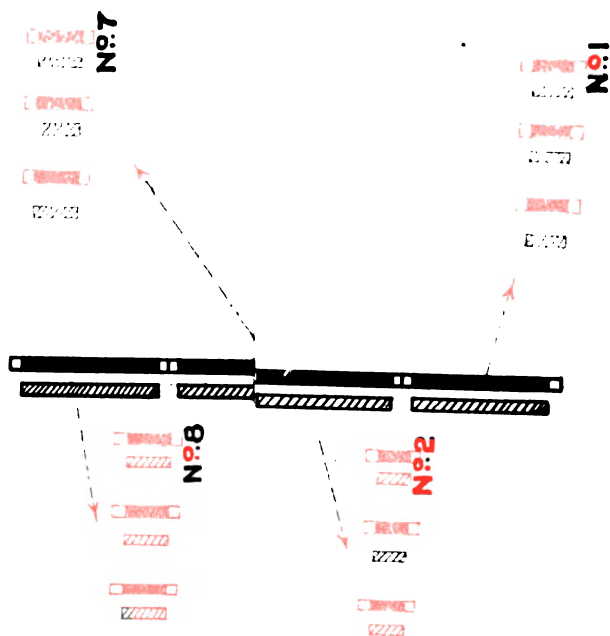
The remaining sections of the Right Half Battalion move slightly, and get into position as, the 2nd line, and the left Half Battalion simply know where it is. Now by another signal, each of these lines can extend to whatever intervals the commander of the line may desire. As a rough rule for drill purposes Fire-line Extensions should be 20 yards, support 10 yards, reserves 5 yards, *i.e.*, between each man; or, extend your 1st line and leave the others alone, or leave them all alone. Now advance on, using your judgment as to the distances between your lines. These distances can be 20 yards or 500, it all depends on the circumstances of the moment and ground. But you may find you want to attack away to a flank, or divert the direction of your attack. Now it would seldom happen that, having decided to attack in a certain direction, you would then change the objective; but, (as the whole formation is not a set formation for attack, but simply a preliminary one to develop the final "Where" to strike), it is possible, you may thus require to deviate. This can easily be done; face your reserve in the required direction, and throw them out into 1st and 2nd lines as above; protect the flanks of your already extended waves, by wheeling their flank sections, to fire in the required direction, till the reserve, having advanced its lines, masks your fire; meanwhile the whole of the old 1st and 2nd line converge and form a new reserve.

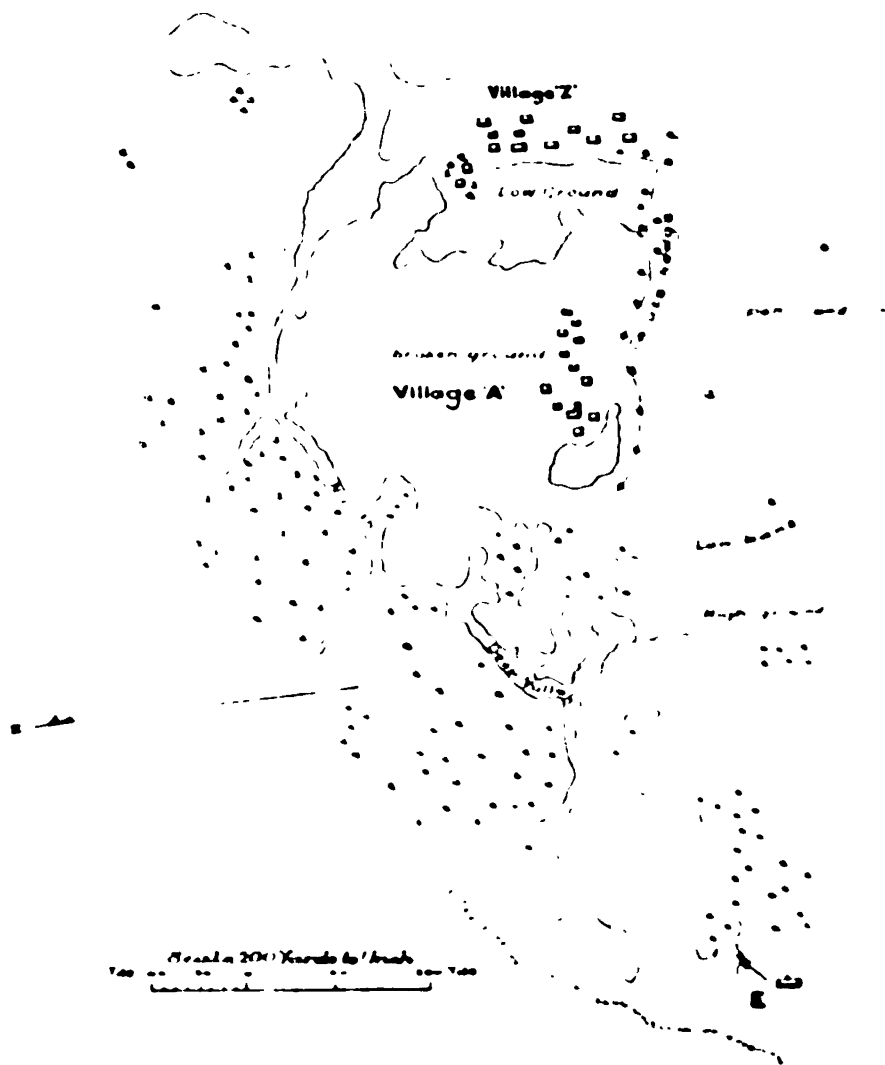
One more example. Here you have the same thing from Line shewn in Plate III.

PLATE.3.

1911. 10. 10. 10. 10.

1911. 10. 10. 10. 10.





Remember if your sections are very strong you need only have sub-sections in the 1st line. Some here may remark all very fine in theory on a flat plain, but what about broken ground; well, here is an example I saw the other day; a regiment, preceded by an advance guard and Scouts, was marching in fours, through thick jungle. From "E" as the advanced guard emerged, they came on village "A" strongly held. They took up a position and sent word back. The signal was given, and in half a minute, the column was all under cover in "Preliminary Formation" (1st, 2nd and 3rd lines). Orders were now issued.

"Objective village "A". Mode of attack. General concentration (from cover) of the fire of the whole battalion on objective, followed by assault, supported by fire. Distribution—1st and 2nd lines concentrate rapidly on position occupied by the advance guard; 3rd line prolong to the left. The assault, when ordered, will be carried out by advance guard and 1st and 2nd lines. 3rd line stand fast, and support by fire." Later on the objective "Z" was taken, as the 3rd line outflanked it, supported by our fire from "A."

I only mention all this to show that though the ground was very broken, each line was doing, and could be ordered to do its own independent work, and yet all were assisting each other. Now no one can contend there was any set form of attack carried out. It started on a set formation which at once adapted itself to the circumstances of the moment, and such is the spirit of Part 4 of "Infantry Training;" and what I have said of a Battalion, adapts itself in the same simple manner in Brigade, and it is then when it is most essential.

I suppose most of us have read Major Callwell's Tactics of to-day; you may remember in speaking of how tactical progress tends to enable an attacking army to surround the enemy, he says, "As the turning movement trends flankwards, the capacity of resistance which troops standing on the defensive derive from modern armament, enables the commander of the attacking side to extend his operations with no little boldness and effect. Detachments drop off as the march proceeds and face the adversary forming, a long thin line right round the hostile flank, till at last a considerable proportion of the original attacking army finds itself in a position—its communications secure to operate against the rear of the opponents. At Metz a German host enveloped Bazaine in strength only one-half greater than that of the French Force which was enclosed; but it seems not impossible that we may in the early future find one army surrounding and blockading another numerically equal to itself and compelling a surrender.

It sounds almost like a paradox to say that the fire-arms in use at the commencement of the twentieth century favour the defence to such an extent, that an army standing on the defensive is actually at a disadvantage on this very account. But there is a certain amount of truth in it. Nothing causes a commander greater anxiety than the fear of being surrounded or partially surrounded. Any hint of such a possibility affects the morale of the best troops."

Well, gentlemen, look how easily these "Preliminary Formations" adapt themselves to the carrying out of what I have quoted; push up

your line, bring them up on the flanks, and let them prolong away. Say a battalion has to reinforce or prolong to a flank, it thus goes up gradually, feeling its way, and wave after wave, first weak, later on very strong, comes up, and concentrates where wanted; and, what is so dangerous to the attackers as a sudden reinforcement of the defence when the struggle for fire-superiority is at its height?

The sketches shown here relate to a battalion, but it is obvious, how the same simple formation adapts itself to the company, double company, or any number of companies. Thus a company rapidly adopts the formation, throwing out one section into its 1st line, a second section the 2nd line, or support, and the remaining half company, as its reserve in 3rd line, and so on proportionately for a double company, or half battalion; always remembering to keep at least half the force as the 3rd line or reserve. I have so far treated of this matter of "Preliminary Formations" in regard to the starting or initial periods of an attack, or for defensive purposes in an advance or reinforcement; but, you can see how, if a regiment is thoroughly disciplined and trained to the system, it lends itself to a fresh advance after some certain position has been captured or gained, and we are told that the best type of an offensive battle is "*A methodical progression from point to point.*" "Preliminary Formations" can again be formed, the waves divide themselves, and the advance is continued; the waves being sent to follow each other, or, diverted to wherever the ground and circumstances may demand. But this forming of "Preliminary Formation" a second time in the heat of action, would require the highest training and practice.

But remember, when working on the wave principle, that you must have well trained and intelligent connecting links, and that if any halting is required of waves in rear, the signals must come from the front, and that failing such signal the waves should ever push ahead. And it is here where the leading waves must remember Colonel Woolcombe's remarks that I have quoted in the opening lines of the lecture, and wait and get reinforced and carry on that methodical progression of capture from point to point. If waves are halted by orders from the rear, they must be very careful to see that those in front do not continue to advance and get isolated. Those in rear do not know what is going on in front, and hence I repeat they should not lightly interfere with an advance once it is in progress.

I do not claim originality for "Preliminary Formations" in all its details, but I will quote what a distinguished commanding officer of the British regiment from whom I learnt the term says of it—"I have never yet seen anything to beat getting over the ground better than S——'s and my way. We can with it go anywhere and turn in any direction and Gunners say they cannot waste ammunition on us. Of course, I have no knowledge of its use in actual bullet land, but it aimed at giving section commanders authority and made matters most elastic". And so I once again repeat, gentlemen, whatever the device for "Preliminary Formation" may be, let it be one that is generally and thoroughly understood.

It seems to me, otherwise, that you destroy all power of confident

and concerted initial movement and cause unnecessary delay and many *starting* explanations.

And before I close let me once again impress on you that I am not advocating any set form of attack, or committing you to one hard and set form to invariably adopt in an attack, nor is the lecture one of the demerits and merits of the " Assembly Formation," which has only been brought in as a side light. My object has simply been to lay before you, after careful thought and consideration, my reading of the books given to us for guidance, though I do not for a moment contend that my interpretation is infallible. But it seems to me absolutely essential that there should be some generally understood device from which a commander of troops can rapidly get them into battle formation, and from whence he can mould and issue his further orders as the situation develops.

Many here may say a great deal has been made out of very little. True the movements are just simple little battalion drill movements, but I have found that they require constant practice and attention to bring a regiment to the pitch of forming them automatically, under any conditions, and at any moment, rapidly, then and there, just on a signal; and, hence I choose this simple subject as my lecture this evening. A regiment which is perfect at this, gains a feeling of self-confidence and security against any sudden surprise; and, just as Colonel Woollcombe said, " we do not get to fire-discipline and fire-direction without a great deal of careful preliminary drill and training," so, I repeat, we do not get to perfection in those rapid extensions and the appreciation of cover and discipline of the advance, so necessary before we can get over ground in the present day, without a great deal of careful preliminary drill and training, and constant practice, at all times, from all formations, and over every conceivable kind of ground. We must practise under peace conditions; for, when once the fire of the skirmishers in action has grown hot, it is no longer possible to exercise any influence. You must train your men to rapid movement when you are ordered to attack vigorously; or, you will find delay, and irresolution; and, instead of the impetuous advance of overwhelming waves, a series of ill-supported attacks.

Remember, that what you strike and win with is your " Re-serve."—The " Where " to strike, is, sometimes, easy to decide; but the decisive " When," is a very different story. Sometimes the advanced troops decide this important matter for themselves. It has often happened in a general action, that there was at one time a chance for the defeated side, but the commander failed to seize the exact " When ". Napier calls them " Those happy occasions which in war take birth and flight at the same instant." " Fortune," said Napoleon, " is a woman; avail yourself of her favour while she is in the humour. Beware that she does not change through resentment at your neglect."

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BY LIEUTENANT G. H. WILLIS, R. E.

This article does not deal with the portrayal of the incidents of a campaign, but endeavours to point out the uses to which photography, in its latest developments, may be made to serve that end to obtain which a commander should use all facilities at his disposal; that is, to ensure every possible advantage for the forces under his command when they meet those of the enemy.

During the last few years folding cameras, rollable films, chemicals in concentrated portable forms, daylight developing devices and other ingenious inventions, tending to render photographic work possible under conditions naturally adverse, have come into existence. The present article seeks to show how these latter-day developments might conceivably be utilized in the "Art of war".

It will probably be conceded that maps, though a necessity, no matter how well understood fail to portray accurately to the minds of their readers the nature of the ground. They can never show adequately the nature of the ground in detail or the configuration of the accidents of the country, as distinguished from the main features, even though they be on a very large scale. On the other hand, in conjunction with a photograph on which is accurately marked the point from which it is taken on the map, the direction in which the lens was pointing, and signs identifying some few of the more important features of the landscape which also appear on the map, the latter will afford a far larger amount of information than it can give by itself. In the attack, in retreat, in the passage of a defile, and in the occupation of a position, the examination of a well selected series of photographs taken by an operator versed in military requirements, might often prevent an unsuitable disposition being adopted. In these days of extended positions, where it is quite impossible for one man to visit and make himself thoroughly acquainted with the whole front that he is occupying or attacking, the commander must rely to a very large extent on the map and on his staff officers. Staff officers introduce a personal equation and may or may not be able to convey an accurate impression of their observations to their Chief. With a staff familiar to the chief, the errors introduced by these factors may be small or negligible, but one newly appointed staff officer may introduce the element of failure into the commander's plans. It is claimed that a series of photographs would supply the necessary check on the human element in the staff, and supplemented by sketch maps might even supply the key of success in the attack or defence to the commander to whose scrutiny they are brought.

It is obvious that photographs, to be of any use for the purposes above enumerated, must be taken by men skilled in military requirements, must be produced rapidly, and must be transmitted without loss of time to the commander of the force.

These three essentials will be dealt with in the above order.

A small corps of well educated, young, and active men with some previous knowledge of photography might be formed, and placed under an officer with similar qualifications. Both officer and men would be the better for being keen shikaris, as clever stalking would be most useful to them in securing photographs of positions

held by the enemy. The corps might in the first instance consist of six men divided into sections of three, each section forming a self-contained unit. They should be mounted, armed only with a revolver, and equipped as lightly as possible, so as to be unhampered in their movements and able to carry with ease their photographic equipment. In peace time they should be thoroughly trained in photography, map reading, rapid map drawing, the capabilities of the various arms and the choice of positions, as well as in horsemanship and horsemastership. Whenever field days or combined training are carried out, they should go out with the troops and carry out their war duties to accustom them to work in combination with all arms, and to learn what is required of them in actual practice, the best of all schools. They might also usefully take a part in staff rides.

Now as to the equipment, each section of three men would be further sub-divided, two men being detailed for extremely rapid work and one for more deliberate work.

The two former would be armed with folding cameras fitted with good lenses and shutters, and preferably a telephoto attachment such as Dallmeyer's "Adon". The camera should be capable of considerable extension to obtain all the benefits of the telephoto lens and should, of course, be very strongly constructed. It should be adapted to take plates or films at will. Continuous roll films are now made so that focussing can be done between each exposure, and no doubt, with the exercise of a little ingenuity, an apparatus could be devised which would remove and develop these films singly as required, without disturbing the remainder of the roll. In these days of the cheap snapshot camera it is unnecessary to point out that the roll film is the most portable medium upon which photographs can be taken. Glass plates would appear however to be more suitable under certain circumstances. They do not deteriorate so rapidly and are not so easily damaged in the processes they have to undergo. They are however liable to breakage, and are heavier than the films. In addition to the camera, each of the two men would carry a daylight developing apparatus, small plate changing bag, plates, films, a printing frame, sensitive paper, and a small supply of chemicals in tabloid or powder form together with some water for making solutions. The size of the picture might conveniently be that of the latest Kodak camera, *viz.*, $3\frac{1}{4}'' \times 5\frac{1}{4}''$. An aluminium tripod stand would be an excellent addition to the articles already enumerated. This equipment would weigh less than twelve pounds, or, say with the necessary receptacles, under fifteen pounds.

The third man of the section, whose work would be of a more deliberate nature normally, would be equipped with a larger camera specially adapted for high power telephoto work with colour screens and other refinements. He would require a small portable dark room, some dishes, a camera stand, and other materials. He would be accompanied by a led mule rendered necessary by his heavier apparatus. His especial function would be the photographic observation of the enemy's position at long range, with a view to the use of enfilade fire by concealed batteries, or, in favourable circumstances, with a view to affording early information to the commander of an advancing force still some distance to the rear. Though his work

is here classed as deliberate, it would not necessitate the amount of time now considered essential by the uninitiated for the production of a photograph. It is thought that with the use of suitable colour screens the firing of a gun using so-called smokeless powder could be recorded in a photograph when invisible to human observers, but so far as the writer is aware this still requires to be demonstrated by actual experiment.

Now as to the *modus operandi* of the photographic scouts. One having been sent to the front of an advancing force with his apparatus and a map, is ordered to obtain a series of photographs of a position which the enemy is known to be holding. He gets as near as the enemy will allow him, and having taken say six photographs from such points of view as commend themselves to him, the points of view being roughly on the line of advance, he retires well within the cavalry screen, and in a convenient spot develops and fixes his films. He then prints the photographs on some slow printing bromide paper, develops and fixes that, rolls it up and places it in a small tube with sufficient water, or employs other suitable methods to prevent its sticking together, or otherwise becoming damaged *en route*, and transmits it to the commander of the force. The transmitting agency will be dealt with later. He then reports himself for further orders. In the meantime the other man may have been detailed to supply photographs of the surroundings of some selected camping ground, indicated on the map, with a view to informing the commander of the force of the dispositions necessary for its defence. His procedure is similar to that described above. It is thought that under favourable circumstances, a series of six photographs could be successfully taken, developed and despatched in thirty minutes. It may here be pointed out that great permanence will not be required in these photographs, so that extended washing is unnecessary.

As regards transmitting the photographs when completed, this should be done by cavalymen especially well mounted and with great experience as despatch riders. One or more, according as the duty necessitated the transmission of one or more sets of photographs, should accompany each photographic scout.

The photographic equipment of such a corps of one officer and six men might be somewhat as follows:—

Four folding cameras $3\frac{1}{4}'' \times 5\frac{1}{2}''$ fitted with Dallmeyer Series II Stigmatic Lenses F6, and Voigtlander shutters.

Four aluminium tripods.

Four changing bags, daylight developers, printing frames, and receptacles.

Two Shew "Press" focal plane shutter reflector half plate cameras, fitted with Dallmeyer 2B Patent portrait lenses with high and moderate power, telephoto attachments in aluminium mounts, Burchett colour screens and time shutter.

Two Tripods.

Two developing tents with dishes, printing frames, &c., &c.

Plates, paper, chemicals, &c., &c.

To these might, be usefully added a Bridges-Lee photo-theodolite, for accurate photographic survey work.

INFANTRY AND FIELD ARTILLERY.

A suggestion for their closer union.

BY MAJOR E. E. NORRIS, R.F.A.

The close sympathy which should exist in these days on the battlefield between infantry and field artillery (or mountain artillery) seems to demand that these two arms should in some way be brought administratively closer together in times of peace as well as war. By field artillery, is meant that portion of the mobile artillery of an army (the large majority) which is armed with the ordinary field gun and at present allotted two brigades to a division of all arms. In every great battle—in every battle, as opposed to a combat—infantry requires the closest support and help of field artillery, so close indeed that to attain the greatest success they should work together as smoothly as do a well trained pair of horses. The infantry may be the predominant partner, but without the support of the other, their real success can never be assured. Their interdependence has been excellently expressed by Hönnig in his "Tactics of the future" (Introduction, 4th Edition). 'It is no longer correct,' he 'says, to speak of the infantry in comparison with the artillery, as the principle arm concerned with the execution of the combat through all its phases. * * * The artillery may in one place, the infantry in another, prove temporarily more effective than its sister arm * * * Each arm requires something, to complete its tactical effectiveness. They belong ever to each other.'

No doubt the red hot foot soldier will say infantry is the backbone of the army and really does all the work, but he will have to acknowledge that what it has to do, is much better and more easily done with the help of efficient field artillery. The rabid gunner will say that no success is possible till the guns break down opposition, but he too must own that no operation can be completed without infantry. Each arm requires something to complete its practical effectiveness. "They belong ever to each other." The artillery certainly has no tactics of its own pure and simple. Equally may it be said that in the battle infantry has none either. One only has to read "Combined Training" and the other manuals to see how this idea pervades the instructions therein. Almost every sentence which describes the principles governing attack and defence, that great branch of tactics in which guns and rifles together occupy the chief place, refers to both arms. Let us see.

Success is only to be attained by fire at decisive range and as the fire of attacking troops beyond that range can have very little effect upon a well covered enemy, infantry engaged in a decisive attack should endeavour before opening fire to advance as close to the position as possible (Inf. T. 213-(1).) But it will seldom be advisable for infantry so to advance to decisive ranges unless the defending

infantry continues to be exposed to heavy and effective fire of artillery (Com. T. 18-3). In order to co-operate with the infantry to the fullest extent the C.R.A. must accompany the G.O.C. in his reconnaissance and receive from him precise instructions as to the rôle which the artillery is to carry out with regard to the attack, including orders as to the first position to be occupied by the guns (F. Art. T. Ch. I Sec. 1). The artillery will come into action under the protection of the advance guard (Com. T. 16-1). Its first objective will generally be the enemy's guns, the second the point of immediate attack (Com. T. 16-1). In this preparation the attacking infantry will always be called upon to take part, its first task will as a rule be to enable the artillery to find a target. (Com. T. 18-2 and 3). The leading units will then, covered by the fire of both infantry and artillery, endeavour to establish themselves in good fire positions (Com. T. 18-4). This object is achieved by gaining ground with a few men and gradually reinforcing them until the firing line attains the maximum density of 100 feet per yard (Inf. T. 220-2). There they will endeavour, still in co-operation with the artillery, to subdue the enemy's fire until it becomes possible to work up by degrees to the closest range. (Com. T. 18-4) Artillery fire should be continued against the enemy's position until the attacking infantry is close to it. Even then fire should not be stopped, but it can be directed over the position and continued during the infantry assault (Com. T. 16-6).

What could more fully illustrate the maxim, "they help each other". In defence, if possible their duties intermingle more closely still.

Of course there are other great combinations in the employment of the three arms—Cavalry, guns and infantry all together, cavalry and horse artillery, infantry and mounted infantry, pursuits by mounted troops and so on—again special units specially assigned to the task of the hour, howitzers, engineer troops, cyclists—but the bulk of the work must always be done by the infantry, and where fighting has to be done by infantry and guns combined. It is this particular combination which is now under consideration. How can we most certainly ensure that when the enemy has to be met and defeated, these two arms will work smoothly together? How can guns best help rifles and vice versa? To do so, the two must in peace, as well as in war, be brought into the closest union.

I suggest that to ensure all this, both must be brought under the direct command of one man. Who is he to be? Now, actually, in our tactics, our own "combined training" included, there is no opinion that in every great engagement the control of the troops engaged ceases early to remain in the hands of the highest commanders. Having carefully allotted each body of troops its share in the task, the only influence they can exert on the progress of events, is by retreating and as occasions arise using reserves. It is accepted that this applies to all leaders, down to divisional commanders, but it is not quite so clear that a Brigadier must necessarily lose all control over his battalions. The weight of opinion seems to show that by judicious management (no stronger term can well be

used) he can generally, after he has carefully started them on their way towards the enemy, at any rate secure coherence in their movements. By urging here and restraining there he can, if his judgment is good and his eye quick, at any rate prevent wandering from the objective, until his battalions approach decisive ranges. Then, only battalion commanders and soon none but company, section, and even less exalted, leaders will have any influence so far as rifle fire is concerned. It is these last who must establish in good fire positions that maximum number of men who will overpower the enemy by fire action. But what of the guns? These too have a part to play. Unless they have continuously pounded the enemy during the advance, the task of the infantry will scarcely have been possible. By means of the guns, the brigade commander can still assist his battalions to carry out the tasks he has assigned to them. These latter he has lead into action, he knows their spirit, he has disposed them to the best of his ability, he has seen them close up to 1,000 yards, to 600 yards and he has lost all personal control. But he knows their needs, he knows exactly their objective, he can watch their movements, and he it is who, outside the firing line, can most appreciate their difficulties, and feel the crisis coming. Surely he is the man most likely to be able to handle the guns to the best advantage. Should they remain at 2,500 yards range, should they close to 1,500? Is counter-attack likely or probable? On the spot he can answer these questions best, and should therefore be in a position to act at once. If they were to him exactly as one of his own battalions, there could not be friction or misunderstanding. Assume a situation which may be common in some form or other. A division is attacking. One brigade is holding the enemy along his front. The other is making a decisive attack on a flank. The bulk of the guns are placed to aid this flank attack, but are divisional troops. The divisional General Officer Commanding is watching the fight, and so is the Brigadier. The latter wants close support from some guns, or wants them to slightly change their target. Some hostile companies are making a particularly firm stand in one particular position, the situation is critical. In such case, would it not be better for the Brigadier to be able at once to order his own guns to act, is he not more likely to know exactly the nature of the crisis? Valuable time might be lost while the General Officer Commanding was complying with appeals for support, or at a greater distance discovering for himself the nature of and reason of the crisis. It appears probable that, five times out of six, the Brigadier could act more promptly and decisively if the guns were his own. The days of "preparation" by artillery alone are gone. It is recognised as useless in nearly every case to bombard a position, unless infantry are there to find targets, the closest co-operation is necessary between guns and rifles, and if this be so in war, should not the principles be practised in peace?

The conclusion therefore seems to be that guns in peace as well as war should be placed directly under the command of the man who can use them to the best effect in the fight, and that man is the Brigadier. Therefore let us incorporate guns with infantry in

infantry continues to be exposed to heavy and effective fire of artillery (Com. T. 18-3) In order to co-operate with the infantry to the fullest extent the C.R.A. must accompany the G.O.C. in his reconnaissance and receive from him precise instructions as to the rôle which the artillery is to carry out with regard to the attack, including orders as to the first position to be occupied by the guns (F. Art. T. Ch. I Sec 7.) The artillery will come into action under the protection of the advance guard (Com. T. 16-1.) Its first objective will generally be the enemy's guns, the second the point of immediate attack (Com. T. 16-1.) In this preparation the attacking infantry will always be called upon to take part, its first task will as a rule be to enable the artillery to find a target. (Com. T. 18, 2 and 3.) The leading units will then, covered by the fire of both infantry and artillery, endeavour to establish themselves in good fire positions (Com. T. 18-4.) This object is achieved by gaining ground with a few men and gradually reinforcing them until the firing line attains the maximum density of 1 rifle per yard (Inf. T. 220-2.) There they will endeavour, still in co-operation with the artillery, to subdue the enemy's fire until it becomes possible to work up by degrees to the closest range. (Com. T. 18-4.) Artillery fire should be continued against the enemy's position until the attacking infantry is close to it. Even then fire should not be stopped, but should be directed over the position and continued during the infantry assault (Com. T. 16-6.)

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I suggest that to ensure all this, both must be brought under the direct command of one man. Who is he to be? Now all authorities on tactics, our own "combined training" included, concur in the opinion that in every great engagement the control of the troops engaged ceases early to remain in the hands of the highest commanders. Having carefully allotted each body of troops its share in the task, the only influence they can exert on the progress of events, is by retaining and as occasions arise using reserves. It is accepted that this applies to all leaders, down to divisional commanders, but it is not quite so clear that a Brigadier must necessarily lose all control over his battalions. The weight of opinion seems to show that by judicious management (no stronger term can well be

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The conclusion therefore seems to be that guns in peace as well as war should be placed directly under the command of the man who can use them to the best effect in the fight, and that man is the Brigadier. Therefore let us incorporate guns with infantry in the

brigade and cease to have divisional artillery. In India this is already done in mountain warfare (page 22, *Frontier Warfare*, 1901) and with the best results. This arrangement would never prevent the divisional commander massing all his guns if he thought fit, and that seems to be the only possible objection to such a reorganisation as is proposed.

Before however going into all the principal pros and cons, it may be well to refer to one matter which, although it involves no principles, would have to be most carefully considered for practical reasons before these mixed brigades were adopted, and that is their organisation. It has already been hinted (by the Secretary of State for War in House of Commons) that as soon as our artillery is armed with the new Q. F. guns, the number of guns per battery will be reduced. But we may hope that the total number of guns will not be materially reduced, and so may see artillery organised in brigades of 16 guns in four batteries. If so, a very symmetrical "brigade" could be formed.

4 battalions and 4 batteries.

32 companies and 16 guns.

Another idea is to retain 36 guns for a division, and adding one battalion, have three brigades of three battalions each, and three brigades of field artillery, of three or four gun batteries. Whichever eventually is adopted, there would still be one battery per battalion and one gun to two companies. There is no desire to labour this point of symmetry, but it is not difficult to see that it might be a very useful fact in the combinations necessary on every battlefield.

Having touched on this point, we will pass to a close consideration of the pros and cons for such a mixed brigade, taking the objection first. The only serious ones are tactical. The first may be, that in a battle when it is necessary to hold in reserve whole brigades of infantry, all the guns of those brigades would lie idle, and it is wrong to hold guns in reserve. Undoubtedly this latter is a sound maxim, but need it be accepted as an absolute dogma? In the first place, the divisional or higher commander could at any time direct all his guns to take part in some particular move. Again, the guns of a brigade held in reserve could occupy a position where they could join in the preliminary phases of the battle, and still be ready to rejoin their own brigade whenever it joined in the operation actively. Both these courses are but adaptations of the rule, that all units whether great or small must help other units with their fire to advance, or at any rate prevent the enemy's advance. Again one great use of a reserve is to make or meet counter-attacks, and Com. Tg. 32.-1 says it will generally be advantageous if some guns accompany the infantry and come into action at decisive ranges at such times. Where, if those guns are not already with the reserve, are they to come from? All counter attacks have to be made suddenly at the psychological moment (though they may have been prepared long before) and still more must they be met suddenly. Will it be possible to get guns, already engaged in the main action, to render such necessary service? "Combined Training" in paragraph 12.2. iii says, the entire strength of the artillery available will as general rule be brought into action at the beginning of the engagement, but the words "as a general rule"

show that it is considered possibly necessary to keep guns in reserve prior to an attack. For defence the possibility is far greater, in fact it amounts to a probability (Com. Tg., 31 and 32,1).

After 1870, all armies were so much struck by the success on certain occasions of the German artillery, that it became a maxim that there must be no reserve artillery. But much has happened since then. Smokeless powder has immensely modified tactics, and quick-firing guns are no doubt destined to still further change the order of things a generation hence. We must consider things from a modern point of view, and now the maxim is, there must be no reserve at all in the old sense. Some troops must be held in hand at first or even for some time, but no General would to-day hold them in reserve and try to win without using them. He will only keep them back, because he knows that once started forward he will lose control, so till he thinks he is certain what is the best use to put them to, he will keep them in hand; but he will not "keep them in reserve." If attacking, as soon as he sees his enemy's weak point he will use every gun and every rifle to break that point; if acting defensively, he will only wait to see what line the enemy is taking, before he will with all his power oppose the attack or deliver a counter-attack. Our French friends, who no doubt to-day are in the very front rank as artillerists, think that all that has to be done in the early phases of a battle by guns, can be done by a portion of the artillery, and that it is useless to crowd all the guns into the first line at first. Then is it not probable that by temporarily restraining some guns, their effect later will be all the more decisive? At the critical moment in attack, or counter attack, when the assault is to be made, (Com. Tg. 12 and 19) what would not the effect be of guns pouring in rapid fire from some point not till then occupied by artillery? They could probably reach such a position at 1,500 yards or so unobserved, or in defence, lie under cover silent and unseen till the crisis. We must be prepared for many new things with real Q. F. artillery. We know what has been done in the past by reserving musketry fire, is it impossible that similar results may not be attained by reserving gun-fire in the future?

Then again, it may be argued that in an unpremeditated battle, when two armies in motion collide (Com. Tg. 7), Brigadiers might be slow to part with their guns and fail to push them on to support the troops already engaged with the enemy. But why should we assume that our Brigadiers would be so lacking in zeal and knowledge as to willingly keep back guns urgently required in front? Is it not better to hope that well trained brigades will always know when and how to help each other at critical moments.

Lastly, some may object to this amalgamation of artillery with infantry, because artillery officers would have no prospects beyond the command of a Field Artillery Brigade. Not so. They would be on exactly the same footing as regimental infantry officers, and have precisely the same prospects. These mixed Brigades would be commanded by either ex-linesmen or ex-gunners. The best men with good knowledge of the joint tactics of the two arms combined would rise. The field artillery would become pure line artillery, a real sister

arm with the infantry. Put mathematically, every fifth or fourth Brigade would be commanded by an ex-gunner.

Now, if we pass to the advantages, they seem to be many and great.

In the first place, the brigade is today undoubtedly the unit for grand tactics, or manœuvre tactics, as they are varyingly called. So long as strategy, pure and simple, rules the movement of troops, we may have army corps, or divisions, or what not, but so soon as tactics begin to oust strategy, and questions of actual fighting are paramount, control slips from the hands of high commanders and the brigade becomes the unit. In the same way it may be said that as soon as the method of an engagement is decided and troops are committed to action, grand tactics cease to govern the course of events, the hard facts of minor tactics have to be faced, and control passes from the Brigadier to the Captain, the section leader, and even the individual soldier. This being so, will it not be an immense gain to have some guns part and parcel of these grand tactical units? And further, thereby all dual control would cease. The artillery brigade commander would know his master and his place at all times, and all idea that field artillery is a special arm would finally die. It is perhaps unfortunate that "Combined Training" does not lay any stress on this point, that artillery is not a special arm, the reason probably being that the idea of such a thing was already dead in the brain of the man who wrote that book. Unfortunately it lingers in some other brains still. "Field Art Training" continually refers to the way artillery works with Infantry Training is not so precise, "Combined Training" evidently assumes the principle, that in the battle artillery and infantry are interdependent and practically one.

Secondly, the training of both would benefit immensely. With the same man responsible for both, combined drills and parades would be more common; each would get used to the other, their methods and pace; infantry would learn to regard the artillery as "our guns": Commanding officers would come to know each other professionally as well as socially; and juniors could frequently be attached to the other arms during brigade drills and exercises. In one particular and important detail the two would certainly learn to combine better, namely "escorts" (C. T., paragraph 17), no Brigadier would push forward "his own" guns without escort, and if he knew his infantry could not effectually supply protection, he would obtain a mounted escort with probably greater ease than might be the case in following the directions contained in C. T. 17-3. Probably the guns would not have been lost at Colenso if they had been under the Brigadier with whose brigade they were meant to co-operate. Dual control, or triple, caused disaster there.

Troops attending camps of exercise or manœuvres would benefit largely by being already accustomed to each other, and would begin their practical training on strange ground with greater assurance and prospect of benefit.

And lastly, we come to active service, of course the ideal is for troops stationed and trained together to go "to the front" together. But theory and practice are not always the same in any army. In

ours, the exigencies of terms of service, conditions of service, localisation of garrison etc., render it extremely difficult to make the two agree. Out in India it is more difficult than at home, though at camps of exercise and at manœuvres a little experience can be gained. To exercise the actual troops together which would be brigaded together on mobilisation, may at present be hardly even possible, but the advantages to be gained when possible are great and obvious. In order to ensure close co-operation and coherence between guns and rifles, they must know each other in peace, and no doubt in time this desirable condition will be attained by the steady rearrangement of troops and garrisons already begun in India as well as at home.

The last argument now advanced in favour of mixed brigades, is one of expediency. Even if none of the previous arrangements are strong enough, this last must surely have weight. The difficulty of collecting troops in sufficient numbers to be drilled and trained in divisions is extremely great, and some units hardly ever take part in such exercises. The writer has never been in large manœuvres since 1886. But sufficient can often, if not always, be collected for brigade training. Now as troops are trained in peace, so will they work in war. Those responsible for methods study history, and evolve rules and arrange combinations of the various arms. If those rules can be practised by troops organised as laid down, well and good, but if anything else is practised, that anything will be done in war too, so it seems a mistake to organise divisions, when troops can scarcely ever be trained as such, whereas if organised in brigades, they could have frequent training; whenever possible of course, brigades should be grouped together to give higher commanders and staff, practice in their duties, but that is a side issue. Guns and rifles trained to work coherently in brigades, will so work in war; if they could be trained in divisions, this argument of expediency would fail, but it is a matter of common knowledge that they cannot as a rule so be trained. Surely it is better to practically learn methods which can be always followed in war, than only to theoretically and scrappily learn others, which can seldom be properly practised till in the face of an enemy. Of course there must be special units, heavy guns, howitzers, mounted infantry, engineers, and so on attached to every group of brigades, call them divisions, corps or what not, but unless infantry and ordinary field artillery learn to work in the closest manner possible, we shall never get the full effect of fire which is to defeat our enemy in the next war. Finally, which would a commander prefer to have under him, a force of three divisions, scarcely ever trained as such in peace, or a force of six brigades all more or less regularly trained as such in peace? Surely the latter.

It is not proposed to discuss here the exact composition of these mixed brigades, or divisions, as it might be better to call them, leaving the term "brigade" to imply a group of two or three units of the same arm. A specimen can already be found on page 22 of "Frontier Warfare," 1901, which might well form a model upon which to frame suitable organisations for all kinds of warfare, other than frontier or mountain.

Only has an attempt been made to show one way by which it would appear better that co-operation between guns and rifles could be attained.

PRÉCIS OF THE GERMAN PAPERS.

BY CAPTAIN H. W. SENIOR.

Internationale Revue ueber die gesamten Armeen und Flotten (February to June 1904, and Supplements).

Perhaps the most interesting article in the February number is one descriptive of a forced march carried out last summer in Japan during considerable heat by the 2-8th Infantry Regiment of the IVth Division. The roads traversed were fairly good and were passable for all arms, though the country was hilly. The battalion, 453 strong, left its barracks at 2 A.M. on the morning of the 29th June 1903 and returned at 11 P.M. the same night, having covered nearly 47 miles. The men carried their knapsacks and rolled great-coats. The actual marching time was 17 hours 20 minutes. No men fell out. In the judgment of the reporter they were still capable of marching another 5 or 6 miles and of fighting a battle at the end of it. This was no isolated instance, as every Division of the Japanese army carried out last summer a regular training in such forced marches, which this summer will be probably of the greatest value to them.

An instance of the physical capacity of the Japanese soldier, which is due largely to his careful training, is given in the 51st German supplement. A battalion of the 45th Regiment during last year's manœuvres was ordered to the front. It advanced at the double for 2 hours and went into the fight without a pause to take breath.

The Russian reservists according to the next number have also been doing some good marching. The men concentrated at Blagoveschensk and in order to avoid the long journey by the Amur River marched south to Tsitsihar on the railway. They covered the distance of 330 miles in 11 days in bitter cold weather.

The February number also gives tables showing the state of education in the Russian and Japanese armies respectively. From these it appears that the XIth Japanese Division from the island of Shikoku is the least educated in their army, as it contains 10 per cent. of men who are unable to read or write, whilst in the whole Russian army 56.4 is the percentage of such men. In spite of this state of affairs the following number tells us that the regimental school-masters of the 2nd Siberian Corps have been ordered to teach Chinese!

The April number gives the strength of the Cossacks in Europe as 166,900 and of the Asiatic Cossack force as 28,000 men with 35 and 8 batteries respectively. It appears from the article that the Cossack form of service, which is a sort of compulsory sildadar system, owing to the increased cost of military equipment and to their land being gradually absorbed by Russian settlers, is pressing very heavily on their population.

The April also number gives comparative tables of the military telegraph organisations of the different powers. The remainder of this number is largely taken up with details of the organisation of the Russian and Japanese armies.

The May number contains nothing particularly noteworthy.

From the June number we learn that a Japanese captain had to pay a deposit of 460 yen (£46), a lieutenant of 600 yen (£60), before he was permitted to marry. This rule has now been abrogated. No deposits are required, but under-officers must obtain the consent of their Regimental Commander, officers that of the Minister of War, before they may marry. Japanese generals are obliged to obtain the consent of the Emperor to their marriages.

The most important article in the 60th French Supplement deals with the use of wireless telegraphy in war. The field apparatus in use in Germany is drawn by six horses and may be taken wherever a field-gun can be. It will be therefore invaluable in communicating with detached cavalry and between forces separated by broken and difficult country, which a mounted orderly would take some time to cross. Wireless telegraphy will also be of great use in permitting communication between a besieged fortress and a relieving army. Owing however to the danger of messages sent by this means being ingread by the enemy, cryptography and the art of discovering the meaning of messages in cypher will take a far higher place as a study of military importance than it at present occupies.

The 61st French Supplement contains two very interesting articles on the importance of enveloping action in war and on success in battle. The latter is a review of the third volume of the historical studies on war and tactics published by the German General Staff. Whilst recognising that good fortune must ever play an important rôle in war, the object of the book is to show the causes which lead to success in battle, after eliminating those which are dependent solely on the bravery of the troops.

The last article of No. 62 discusses the action of the Japanese in cutting the cable which joined Port Arthur to the Chinese neutral territory of Chifu. The saying of Admiral Fisher at the Hague Conference, to the effect that international conventions would be little considered when the safety of England was endangered, is quoted as enforcing the opinion of the French savant Renault that cables would only be completely secure when there was no more war.

Supplement 63 contains the translation into French of General Von Lignitz's article on the lessons of winter campaigns, which has been noticed already in the last number of this Journal. This number quotes largely from General Sir Alfred Turner's article on the German army in the Proceedings of the Royal Artillery Institution.

The 50th and 51st German Supplements are devoted to last year's French grand manœuvres. According to the author the modern method of endeavouring to improve the individualism of the private soldier is a special danger to the French army and is likely to lead to an excessive want of uniformity in its training. This danger is emphasised owing to the manner by which French officers are recruited from all classes.

The 51st supplement gives an account of the Japanese army.

No. 52 contains detailed particulars of the new quick-firing field gun, with which the artillery of the United States army has been re-armed.

Militär Wochenblatt (numbers 14 to 26).

No. 18 contains an unsigned paper on the recent alterations in the British army administration. The author's ideas may be shown by the following quotations : " The position of the Commander-in-Chief has been ever uncertain and wrong ; in every case it has fallen short of the high-sounding title. Between the nominal head of the army, the King, and the Commander-in-Chief stood the Minister of War. The Commander-in-Chief according to the letter of the law was unquestionably the subordinate of a much younger man, whom politics had raised to the Ministry and who according to ancient and apparently unalterable custom was a civilian understanding nothing of military matters." " The newly created Inspector-General cannot replace him (the Commander-in-Chief), for he possesses only the right of inspection and the duty of reporting to the Army Council." " The Inspector-General is entirely outside the War Office. It remains to be seen whether causes of difference will not arise between him and the Minister for War." ... " In spite of the fact that Germany has been expressly taken as a pattern, it cannot be said that this Committee is the equivalent of a comprehensive General Staff. Other duties are incumbent on such a General Staff ; for example, the duty of giving an uniform training to those officers who are intended to form the higher staff of the field army. It is this training which ensures the unerring combination of the various portions of an army. British officers cannot obtain such a training from the Staff College alone. It may be that in time this Committee may develop into a body similar to a Continental General Staff."

In No. 26 a new method of ranging for artillery, invented by Captain Aizier of the French Army, is described. Owing to the fact that modern guns recoil in such a manner that the carriage remains fixed, it is possible when firing successive shots to be fairly certain that differences in the strike of the shells are due to changes given in elevation and not to alterations in the position of the carriage. When a shot fired by the right-hand gun falls to the right of the target, as seen by an observer in the centre of the battery, it is short ; if to the left of the target, it is over. With the left gun shots falling to the left are short, to the right are over. It is thus possible by firing the flank guns with different elevations to establish very quickly a short bracket.

The method is also applicable for use with the time fuse. If all the guns of a battery are fired from the right in succession with very short pauses between and with ranges increasing by 50 yards, the bursts will form a line in the sky. If all are short, this line will be inclined at an angle to the horizon having its highest burst to the right, its lowest to the left of the target. If all are over, this line will be reversed, the highest burst being to the left, the lowest to the right of the target. If, however, the correct range is one exactly midway between that given to the two flank guns, the bursts of the shells from these two guns will lie in a vertical line one above the other slightly to the right of the target, and the other bursts will appear slightly to one side or other of the target. It will be seen that the system is especially applicable to night firing, for example, at a bivouac fire.

The guns must be very carefully laid on the fire and provided with auxiliary aiming posts of lanterns, etc. Careful observation of the first series will then show whether the ranges are generally over or short. The target may now disappear, as a bivouac fire on service would be put out. The shooting can however be continued, with the certainty that when the vertical line of bursts clearly defined against the dark sky has been obtained, the range of the now invisible target has also been obtained.

Nos. 43, 44, 45 and 47 contain interesting articles on Cavalry. The first-mentioned number has a review by General Von Pelet-Narbonne of the new French Musketry Regulations for the French Cavalry. The reviewer points out that the French Cavalry have always paid more attention to fighting on foot with the fire-arm than have the Germans, and that these new regulations are a further advance in the same direction. These regulations emphasise the principle that Cavalry should employ its special property of mobility in conjunction with its use of fire to effect surprises and rapidly to close to decisive ranges as opportunity offers. In cases where such action is not possible, it may still utilise its power of rapid movement to avoid losses, whilst harassing the enemy's force by fire.

The French regulations lay down that up to a distance of 1,500 metres from the enemy movements in squadron columns in echelons may be possible, but within that distance Cavalry must be in line, and if liable to come under fire generally in single line. The reviewer thinks that having regard to the teachings of the "new lessons", these regulations do not deal decisively enough with the question of the employment of the fire-arm, and that they still admit of doubt as to whether "the development of fire will be able to replace the energetic determination to get to close quarters with the enemy."

The other articles are signed by the initials alone of two writers. The first makes some suggestions for alterations in equipment and for reducing the weight on the horse. He points out that the white helmets and the white belts of the German Dragoons offer an admirable target, besides enabling the enemy to be certain that the opposing firing line is nothing but dismounted cavalry.

The retention of the lance is advocated, but the present steel tube lance is said to be not a good one and a return to bamboo staves strengthened by a wrought-iron core is suggested. One of the two writers proposes to do away with the sword and advocates the use instead of a small dagger which can be fixed like a bayonet, the combined weapon to be used as a lance in case the latter is lost. The other declares this to be an impracticable idea.

Owing to the small number of rifles available for dismounted action it is suggested that all non-commissioned officers should be in the firing line. It is claimed that in shooting at field practices under service conditions the German Cavalry is not inferior to their Infantry.

The general tendency of these papers is to show that the German Cavalry have not adopted to the same extent as the French the idea of fighting dismounted. All lament the small increase made in the German Cavalry in the last 30 years and its consequent numerical weakness in comparison with that of its powerful neighbours.

No. 57 gives a good account of the difficulties with which the Russians have had to contend owing to the break of continuity at Lake Baikal in the Siberian Railway. Ordinarily the 25 miles across this lake can be done by the steamer "Baikal" transporting a train of 40 carriages in 3 hours. But from December to the middle of April the lake is frozen over and the passage has to be made in sledges or on foot over the ice.

Owing to the shortage of rolling-stock on the eastern portion of the Trans-Siberian Railway at the outbreak of the war, Prince Chilkoff, the Minister of Communications, whose first experience of railway work was at the building of the Trans-Caspian line 30 years ago, conceived the idea of laying a rail-road over the ice. The difficulties were great as the lake is subject to wild storms which pile the frozen waters in great hummocks and cause huge rifts to appear. A route was cleared and laid with sleepers 20 ft. long with rammed snow for ballast. On this way were laid the rails. It was found impossible to utilise the engines to draw over the rolling-stock, as the vibration caused rifts in the ice. The waggons were therefore drawn over singly by horses at distances of 100 yards apart. The locomotives were taken to pieces and passed over in trucks. By these means 65 locomotives and 2,391 vehicles were brought on to the eastern line. On the 28th March, owing to the ice becoming dangerous, the traffic had to be stopped. This temporary line cost nearly £40,000 and won for Prince Chilkoff the decoration of the White Eagle.

Troops were not carried by this temporary line. They had to march across. After their long journey from Russia the men were given one day's rest at a station 50 miles from the lake, where a rest-camp of huts for 4,000 men had been put up. After this rest the men were re-entrained and sent to the lake, being timed to arrive at midnight. After detraining and packing baggage and knapsacks on sledges the troops were given a hot meal and at daybreak started on their long march. To each company was allotted 20 sledges, each capable of carrying 4 men, so as to ensure the crossing during daylight of those men who were unable to march the whole distance. The route was marked by a telegraph line, huts with stoves were erected along it and a refreshment station was placed in the centre of the lake. The cold on Lake Baikal sometimes descends to—50° F.; while in summer the thermometer often mounts to 85° F.

During the break-up of the ice all traffic had to cease or had to be diverted round the south end of the lake, a distance of nearly 180 miles. The railway has however been continued along the eastern edge of the lake as far as Kultuk at the extreme south end. This leaves a stretch of 40 miles along the western shore, mostly difficult tunnelling, which the Russians hope to complete by August of this year. In the interim, after the ice became unsafe and before it had cleared sufficiently for navigation to be resumed, the Russian troops had to march from Irkutsk to Kultuk, a distance of about 45 miles.

The 4th and 5th supplements contain a study of the operations from the 24th to the 29th of June 1866 in the valley of the Iser. The possession of Gitschin during these operations was of importance to the Prussians who detached a cavalry force of 6 squadrons for the

capture of this place. This detachment failed to effect its purpose, as the town was vigorously defended by 150 riflemen. Under modern conditions a cavalry force of equal size would in a dismounted attack dispose of some 600 rifles and Gitschin would most probably have been captured, a result which would have altered considerably the trend of the following operations.

Militär-Literatur-Zeitung (February to May).

The editorials in the first two numbers deal with the Italian and English military literature of the last two years, the latter numbers with that of France for last year only. The most important and generally useful book among the many reviewed in these papers is the annual, now in its thirtieth year of publication, "*Von Loebell's Jahresberichte ueber die Veranderungen and Fortschritte in Militarwesen*" (11 marks), which deals with recent alterations and improvements in military matters in all the armies of the world.

PRECIS OF FRENCH AND SWISS MILITARY JOURNALS.

BY LIEUT. G. H. WILLIS, R. E.

Revue du Cercle Militaire (January, February, March, April, May).

The number for the 30th January contains supposed plans of Japs from a Russian source, partially verified by recent events. The same number and those of 6th and 13th February contain the finishing instalments of an article comparing volley with independent firing. The article is rather inconclusive but leans towards independent firing, rigidly controlled as to duration.

In the number for 13th February weekly accounts of the Russo-Japanese war begin.

The 20th February number contains a description of the rearmament of the Swiss Artillery with quick-firing guns. The number of guns is reduced from 336 to 288, but in place of 56 six gun batteries there are now to be 72 of four guns. The ammunition supply is to provide for 800 rounds per gun instead of 300 rounds.

An article on the organization of Sergeant's Messes occupies the larger part of the numbers for March. Apparently no rules similar to those in King's Regulations exist in France, and the writer puts forward a code of laws for the regulation of these institutions. A short note pleading for scientific corn grinding and bread mixing to increase the useful properties of bread, with proposals as to how this may be done, appears in the number for 19th March.

The April and May numbers print a report on the new two years' service law with copious remarks generally favourable, but objecting to those articles dealing with the position of the students of the Polytechnic and St. Cyr, appeals against service, and exemption from service of the sole support of families and minor matters.

The number for 16th April contains the despatches of the Sikkim-Thibet Mission's fight at Guru. That for 23rd describes shortly the rearmament and augmentation of the Dutch Artillery.

The medical statistics of the French army for 1901 find place in the number of 7th May. The average "hospital-days" per annum in France was 1,077 and in Algeria and Tunis 1,303 per 1,000 effectives. The infantry and staff furnish the smallest proportion of sick, the cavalry and artillery are slightly and the Engineers and transport very much above the average. January, February and March are the sickliest months, September, October and November the healthiest. The officers appear to be very healthy. Deaths from Tuberculosis have greatly increased to 7.2 per 1,000, while those from venereal diseases have slightly increased to 6.7 per 1,000.

The numbers for the 14th and 21st of May contain an able discussion as to who should be responsible for the initiative in the decisive attack in modern battle. The conclusion arrived at is that this initiative must lie with the senior officer who can exercise direct personal

influence over the attacking troops, and not with the officer in chief command of the force.

Revue de cavalerie (January, February, March and April).

The January number contains a short description of a successful cavalry raid in the Sahara. The expedition which consisted of 86 rifles carried rations for ten days on twenty-five camels, traversed 450 kilometres (300 by forced marches) in the ten days and surprised and defeated the enemy who numbered some 200, with a loss to the enemy of 20 men, 40 camels killed and 40 camels captured, the French loss being 10 killed and a few slightly wounded. The history of the origin of the French Cavalry is continued from the December number. The account of the Paris-Rouen-Deauville ride is concluded from the December number. This instalment deals with pace, feeding, "doping" and the weight carried. "Aux Amateurs de Strategie" by General Cardet will repay reading. It appears in the January, March and April numbers and is to be continued. It is too long to give a résumé of, but the general idea of the article is that strategy is only common sense, and that there exists no science of the name.

The February number has an article emphasizing the essential differences between the handling of infantry and cavalry, one asking for more recognition of the capabilities and proper employment of cavalry and the conclusion of some notes on the new regulations for the musketry instruction of that arm. The first two instalments, dealing with the question of freedom of action for subordinate officers, initiative and training, of a clever military dialogue criticizing regulations appear in this number.

An interesting article on the horses of the French Soudan, with illustrations and notes as to their management forms the piece de resistance of the March number. An illustrated review of a book on riding and driving by divisional General Faverot de Kerbrech, in addition to a continuation of the article on the origin of the French cavalry completes the number.

The April number contains an article on the decision as to the manner and the execution of attacks. It notes the general dispositions to be adopted, the chain of initiative, and the progressive formations necessary, and quotes largely from regulations. An article on equitation and another on some experimental bridles and biting will prove of interest. The military dialogues mentioned above are continued.

Revue militaire Suisse (March, April and May numbers).

The March number is principally given up to an article on cavalry exploration, with good maps. The author pleads for a freer hand for the cavalry, then gives an account with reports, etc., of some actual scouting work carried out by the first brigade of cavalry round Freyburg (Switzerland), where the country is well adapted to the scouting of cavalry. Some suggestions as to the direction which Swiss army reform should take are also of interest.

The April number contains the first narrative article on the Russo-Japanese War. Military telegraphy and telephony is treated in a popular manner, wireless telegraphy being well described with illustrations. In view of the discussions regarding conscription in England, the article comparing universal with voluntary service is interesting as showing that conscription has not all the advantages claimed for it by its advocates, at least in the opinion of some in the countries where it is in vogue.

The May number, in addition to the continuation of the account of the Russo-Japanese War, contains an exhaustive article with excellent illustrations of the trials of the Krupp 12 cm. quick-firing howitzer, which the Swiss Artillery Commission have recommended for adoption.

United Service Institution of India.

Prize Essay Gold Medallists.

1872.....ROBERTS, Lieut.-Col. F. S., V.C., C.B., R.A.

1873.....COLQUHOUN, Capt. J. A. S., R.A.

1874.....COLQUHOUN, Capt. J. A. S., R.A.

1879.....ST. JOHN, Maj. O. B. C., R.E.

1880.....BARROW, Lieut. E. G., 7th Bengal Infantry.

1882.....MASON, Lieut. A. H., R.E.

1883.....COLLEN, Maj. E. H. H., S.C.

1884.....BARROW, Capt. E. G., 7th Bengal Infantry.

1887.....YATE, Lieut. A. C., 27th Baluch Infantry.

1888.....MAUDE, Capt. F. N., R.E.

YOUNG, Maj. G. F., 24th P. I. (specially awarded a silver medal).

1889.....DUFF, Capt. B., 9th Bengal Infantry.

1890.....MAGUIRE, Capt. C. M., 2nd Cav., Hyderabad Contingent.

1891.....CARDEW, Lieut. F. G., 10th Bengal Lancers.

1893.....BULLOCK, Maj. G. M., Devonshire Regt.

1894.....CARTER, Capt. F. C., Northumberland Fusiliers.

1895.....NEVILLE, Lieut.-Col. J. P. C., 14th Bengal Lancers.

1896.....BINGLEY, Capt. A. H., 7th Bengal Infantry.

1897.....NAPIER, Capt. G. S. F., Oxfordshire L. I.

1898.....MULLALY, Maj. H., R.E.

CLAY, Capt. C. H., 43rd Gurkha Rifles (specially awarded a silver medal).

1899.....NEVILLE, Col. J. P. C., S.C.

1900.....THUILLIER, Capt. H. F., R.E.

LUBBOCK, Capt. G., R.E. (specially awarded a silver medal).

1901.....RANKEN, Lieut.-Col. G. P., 46th Punjab Infantry.

1902.....TURNER, Capt. H. H. F., 2nd Bengal Lancers.

1903.....HAMILTON, Maj. W. G., D.S.O., Norfolk Regt.

BOND, Capt. R. F. G., R.E. (specially awarded a silver medal).

1904.....MACMUNN, Maj. G. F., D.S.O. R.F.A.

MacGregor Memorial Silver Medallists.

- 1889.....BELL, Col. M. S., V.C., R.E. (specially awarded a gold medal).
- 1890YOUNGHUSBAND, Capt. F. E., K. Dn. Gds.
- 1891.....SAWYER, Maj. H. A., 45th Sikhs.
RAMZAN KHAN, Havildar, 3rd Sikhs.
- 1892.....VAUGHAN, Capt. H. B., 7th Bengal Infantry.
JAGGAT SINGH, Havildar, 19th P. I.
- 1893BOWER, Capt. H., 17th Bengal Cavalry (specially awarded a gold medal).
FAZALDAD KHAN, Dafadar, 17th B. C.
- 1894.....O'SULLIVAN, Maj. G. H. W., R.E.
MULL SINGH, Sowar, 6th B. C.
- 1895.....DAVIES, Capt. H. R., Oxfordshire L. I.
GUNGA DYAL SINGH, Havildar, 2nd Rajputs.
- 1896.....COCKERILL, Lieut. G. K., 28th Punjab Infantry.
GHULAM NABI, Private, Q. O. Corps of Guides.
- 1897.....SWAYNE, Capt. E. J. E., 16th Rajput Infantry.
SHAHZAD MIR, Dafadar, 11th B. L.
- 1898.....WALKER, Capt. H. B., Duke of Cornwall's L. I.
ADAM KHAN, Havildar, Guides Infantry.
- 1899.....DOUGLAS, Capt. J. A., 2nd B. L.
MIHR DIN, Naik, Bengal S. and M.
- 1900.....WINGATE, Capt. A. W. S., 14th B. L.
GURDIT SINGH, Havildar, 45th Sikhs.
- 1901.....BURTON, Major E. B., 17th B. L.
SUNDER SINGH, Colr. Havildar, 31st Burma Infantry.
- 1902.....RAY, CAPTAIN M., R.E., 7th Rajput Infantry.
TILBIR BHANDARI, HAVILDAR, 9th Gurkha Rifles.
- 1903.....MANIFOLD, Lieut.-Col. C. C., I.M.S.
GHULAM HUSSAIN, Dafadar, Guides Infantry.
- 1904.....FRASER, Captain L. D., R.G.A.
MOGHAL BAZ, Dafadar, Guides Cavalry.

NOTICE.

United Service Institution of New South Wales.

The Council of the Institution, having decided that a Gold Medal and a prize of five guineas be granted annually for the best essay on a Naval or Military subject, make known the conditions of the competition:—

- (1) The candidates must be members of the Institution, or persons eligible to become members.
- (2) The subject for this year shall be of a military character.
- (3) The Essays must not exceed 30 pages (exclusive of tables), of the size and style of the "Journal," each page averaging 540 words.
- (4) When a reference is made to any work, the title of such work to be quoted.
- (5) The Essays must be received by the Secretary on or before the 1st November 1904.
- (6) The Essays must be strictly anonymous, but each to have a motto, and to be accompanied by a sealed envelope with the motto written on the outside and the name of the candidate inside.
- (7) The Essays will be submitted for decision to three Referees chosen by the Council; but no awards will be made by them in favour of any Essay which does not, in their opinion, attain a sufficient standard of excellence.
- (8) The award of the Referees will be made known, and the Medal presented to the successful candidate (or his representative) at the Annual General Meeting, and his Essay will be printed in the "Journal."
- (9) The Council shall be entitled to print any of the Essays submitted.
- (10) The following is the subject for the Essay for the year 1904:—

"THE PROVISION OF TRANSPORT FOR THE DEFENCE FORCE OF AUSTRALIA IN TIME OF WAR.

This subject is intended to include a discussion of:—

- (a) The method of impressment under Section 67 of the Defence Act.
- (b) Organization.
- (c) The type or types of vehicles to be used.
- (d) The provision of the required personnel.
- (e) The provision of the transport animals required.
- (f) The numbers required for the War Establishment.
- (g) The preparatory measures to be taken during peace.

NOTE. All Officers holding His Majesty's Commission, whether Imperial or Colonial, shall be eligible to become members. (Rule 4).

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INFLUENCE AND APPLICATION OF SEA POWER ON EXPEDITIONS BASED ON INDIA.

BY MAJOR H. R. MEAD, 116TH MAHRATTAS.

Motto :—“ Altius ibunt qui ad Summa Nitantur.”

(Essay adjudged second in the “ Gold Medal Competition.”)

PRELIMINARY OPENING.

The choice of situations as naval bases and the distribution of the mobile force, military or naval, are the preliminary steps taken during peace to secure the application of

Distribution of forces a preliminary to application of Sea Power.

Sea Power in time of war.

The first is governed by considerations of geographical position, military strength, and natural resources.

Distribution how governed.

Hence before proceeding to analyse the influence and application of Sea Power on expeditions based on India, we must first examine the geographical and strategical situation.

Necessity of studying geographical and strategical situation.

situation of the Indian Empire.

Geographical and Strategical situation of India in relation to the East, and its communications with Europe.

The first point that strikes one in making such an examination is the central position it holds with respect to the Eastern Hemisphere.

Central position of India.

If, on a map of this portion of the globe, we place one leg of a compass

on Cape Comorin as centre, and the other leg on Tasmania, and draw round the circle, we shall find that practically the whole mass of land forming the three continents of Europe, Asia, and Africa, lies inside it: the only exceptions being a slice off North-West Africa, part of Western Europe, including Spain, France, England, and Sweden, and the north-eastern corner of Siberia.

Next we may observe the solidity of the land, which is only cut into by the North Sea and Baltic in North-West Europe, the Mediterranean dividing Europe and Africa, and the arms of the Indian Ocean known as the Red Sea and Persian Gulf.

The result of this distribution of land and water is, that Europe, which is situated on the opposite side to India, has only one alternative sea route to the lengthy passage round by the Cape of Good Hope; that is to say, by the narrow waters of the Mediterranean and Red Sea, which are still further constricted at the Straits of Gibraltar, the Suez Canal, and the Straits of Bab-el-Mandeb.

This route, however, being the shortest, enables the Power which holds it to work on interior lines, as regards any other Power or Powers which are forced to use the Cape route, and this means it can always anticipate reinforcements sent round by the longer road.

It may be urged that one Power at any rate has another alternative line of communications with the East: but, as Captain Mahan points out in his Essay, "Considerations governing the Disposition of Navies," this does not make her independent of the sea passage.

"Russia shares the common lot, while other States have no land route whatever, hers is still so imperfect, as not to constitute a valid substitute. Moreover, whatever resources of moderate bulk may be locally accumulated—coal, provisions, ammunition and stores of various kinds—reinforcements of vessels, or reliefs to ships disabled by service, or in battle, can only go to sea."

Hence we see, that in the event of war between Great Britain and any European Power or Powers, the power of using this line of communications, becomes a most vital one.

Its importance, indeed, in these days is vastly greater than it was in the times of the last Naval War. Then, indeed, France and England indirectly contested for the future supremacy in India, but to-day, it may be almost said that the great centre of interest is the Far East and the Pacific Ocean, and inseparably bound up with it are the commercial routes which lead to it. The through route by the Suez Canal is, it must be remembered, a new factor in the situation.

The maintenance of a line of communications of this length requires the establishment of a chain of coaling stations, and of fortified bases, where ships can coal, and

Disposition of land and sea in Eastern Hemisphere.

Sea communications.

The reason they are important.

The Siberian Railway considered as an alternative route to East.

Increased importance of sea communications since last great Naval War.

Necessity of establishing Naval bases.

reft for service when disabled, and we shall consequently find that such stations have been established by the Powers interested.

In the case of Great Britain we have Gibraltar and Malta, isolated fortresses situated the one on the Mediterranean bases. mainland of Spain, and the other on an island, the fruits of Naval supremacy of the past, and dependent on the continuance of Naval supremacy in war in the future.

Other European nations, whose territory is washed by the Mediterranean Sea, have their fortified bases situated in and supported by their own territory.

Even thus, France has found it necessary to supplement her base on Toulon, by another, on the African Coast, at Biserta.

So far we have confined ourselves to the Mediterranean, but when we come to examine the communications in the Red Sea and Indian Ocean and on to the Pacific, we find the position is somewhat reversed, in that Great Britain has the three large territories of India with Ceylon, Australia and South Africa, which support fortified bases; in addition to isolated stations, such as Aden and Hong-Kong.

No other Power has a position in these seas which corresponds to the above, the nearest approaches are France in Madagascar and Tonquin, and Russia at Vladivostock.

Captain Mahan, in his Essay, "Conditions determining the Naval expansion of the United States," shows clearly the relatively great importance of bases which have the support of territory, as compared to those which are isolated; he says:—

"It may be advisable here to notice passingly an argument at Importance of bases supported by times maintained, and often territory. advanced during recent discussions concerning the annexation of the Phillipines, that while such bases of naval action are intrinsically advantageous, there attaches to them no expediency of holding adjacent territory in political tenure. The United States therefore, so it was urged, for the security of her naval situation in Eastern waters, would require in the Phillipines no more than a naval yard. From the military point of view, this is wholly inaccurate. Any military permanent station, land fortress, or naval arsenal, gains immeasurably in strength from the support of a friendly region in which it is situated, because of the contribution to its resources, and the distance at which attack is held. The impressiveness of the word 'isolation' which we all instinctively feel, testifies to this condition.

"Nor is it conclusive against the military argument that the friendliness be of a passive or reluctant character, as of a population subjected to military control. This consideration is, indeed, material to the general conduct of a war, for the force thus engaged in ensuring submission is withdrawn from that available for other operations, but, so long as it is effective in compelling, or inducing the co-operation of the inhabitants, either as peaceful workmen and agriculturists, or more positively in the field, the particular fortress, land or sea, is far stronger than it could be if surrounded by territory under alien government, even though neutral."

The last paragraph requires particular notice, as being more especially the case of the Indian Empire. Though it may be remarked it is more truly applicable to the case of the Phillipines to which it actually refers, as a newly-acquired possession, than to an Empire which has been indissolubly linked to the destinies of the British race for the last hundred years, and which is bound to us by the ties of interest and gratitude created by a just and progressive rule, exercised during the whole of that period.

We may also see by our own action, and by that of other Powers, that the value of the possession of territory in support of bases is generally appreciated. At Hong-Kong we are endeavouring to include Kowloon in the area under our rule, at Aden we are consolidating our position on the Hinterland, while Russia is continually working away to add Manchuria to her possessions so as to secure a support to Port Arthur, and Germany, not content with Kiao Chau alone, has grasped a considerable area of land with it.

The value of each of these three territories is then very great considered separately, but when we consider their situation relatively to each other and the oceans in which they lie, we shall understand that their importance is much enhanced.

For, placed at the angles of a nearly equilateral triangle, with sides of some 3,500 miles, they are especially fitted to afford each other mutual support, and to dominate the Indian Ocean; whilst the addition of Hong-Kong and the naval ports of Japan, the last thrown open to our use by the Treaty with that country, creates an analogous position in the Western Pacific.

The possession of the three bases thus drawn attention to is not however our only asset, in the strategic situation in the East; in addition to these, we have supplementary bases at Aden, Colombo, Hong-Kong and Singapore, connecting the Further East (Japanese ports and Wei-hai-Wei) with the Mediterranean, by a chain of posts, and our position in this respect is absolutely unique, since the only port belonging to a foreign Power lying on the direct route between Suez and the Further East, is the French coaling station of Jiboutil.

Lastly, we must consider the particulars of India's position; she is attached to the mainland of Asia, but being at the same time cut off from it by the lofty ranges of the Himalayas, the elevated tableland of Thibet, the sandy wastes and rugged wilds of Persia, Baluchistan and Afghanistan, she is possessed of a naturally defensive frontier, whilst at the same time, projecting down into the ocean like a wedge, she possesses two long sea boards which flank the direct road to the Far East.

Also, we may note how central is her position on this route; Ceylon which lies absolutely on it, is almost equidistant from Suez and Shanghai.

Our examination of the geographical and strategical position of India has thus led us inevitably

Summary of most important points disclosed in previous examination. to the recognition of two important facts :—

(1) That the situation of India must not be considered alone, but The East a distinct separate sphere it must be associated with the other great territories we possess in the East, and that, regarded from this point of view, the Indian Empire forms a point in a strategical situation, which embraces the dominion of the Indian Ocean and Western Pacific, of the near and far East, and which distinctly marks off this portion of the globe, as a separate sphere of action and interest.

(2) The sphere of interest is connected with the heart of the Empire by the Mediterranean, and Importance of its communications with Europe. is vitally dependent on this line of communications being kept open. Thus, supremacy in the Mediterranean becomes a matter of absolute necessity, for the command of the Mediterranean once definitely lost and resting in the hands of our enemy, we should be forced to act on exterior lines, our position in the East would be surely undermined, and all our attempts to regain it would be forestalled.

It is not meant to imply by this that the command of the Mediterranean must, or could be, absolutely secured at the commencement of a war.

If we could absolutely secure such command from the first, no war could occur : as it is, no doubt, there would be a period during which superiority would lie first on one side then on another, until finally, as the result of Naval actions, and the receipt of reinforcements, one side would definitely have the upper hand.

A Naval war in which Great Britain was engaged, would almost automatically take place over the whole surface of the navigable waters of the world, since her interests and commerce are world-wide.

Reverses in distant seas would entail the need of reinforcements of ships, men and material, whilst, Intimate connection between Mediterranean and East. on the other hand, success, involving destruction, or damage to the adversary in any quarter, would allow of the Naval strength there being reduced and reinforcements being despatched to the point where most needed—in this instance, to the Mediterranean.

Thus, in Eastern waters, as elsewhere, there would be a species of give and take in the relations existing between it and the Mediterranean ; at one time the East would be called on to contribute to the strength of the position in the Mediterranean whilst, at another, it might be the recipient of reinforcements from that quarter.

But we must also bear in mind, that vital as is the importance of keeping open the direct line of Possibility of a block in the Canal. communications with the East, that it is impossible to absolutely guard against the liability of temporary interruption at the Suez Canal, which may be brought about

by accidents, quite beyond our control ; and we are, therefore, necessarily bound to take all possible precautions in view of this contingency happening.

The result of a temporary stoppage in the Canal would mean temporary dislocation of the Eastern sphere of operations from the central control exercised at home, and the coincident necessity for independent existence on emergency.

But, if we recognise the possibility of such independent existence, we must logically provide the necessary organisation, to allow of its coming into being automatically, as the occasion for it may arise.

And, for this purpose, it is essential that arrangements should be already existing at the time of crisis, for a permanent strategical centre in the East.

Necessity for a permanent Naval strategic centre in the East.

As to the location of this strategical centre, this question is very fully discussed in Captain Mahan's Essay, the "Considerations governing the Disposition of Navies," and as, in a question of Naval (Imperial) policy, the authoritative opinion of this distinguished sailor has its own peculiar value, I have the less hesitation in quoting his own words rather than merely stating his opinion:—

Its location.

He writes:—"In the nature of things there must be a big detachment east of Suez ; the chance of its being momentarily cut off there is not so bad as its being stalled on the other side, dependent on the Cape route to reach the scene. But for the same reason that the Mediterranean and Malta are strategically eminent, because central (as is likewise the Channel with reference to the North Sea and Atlantic) the permanent strategic centre of the Eastern Seas is not by position in China, nor yet in Australia. It is to be found rather at a point which, approximately equidistant from both, is also equidistant from the Mediterranean and the East. * * * * *

* * whether the essential units of scope in naval action east of Suez should receive recognition by embracing Australia, China and India under one general command with local subordinates is a question administrative as well as strategical. As military policy, it has a good side ; for commanders previously independent do not always accept ungrudgingly the intrusion of a superior, because of emergency of war. Military sensitiveness cannot prudently be left out of calculation. There would be benefit also in emphasising in public consciousness the essential unity of military considerations, which should dominate the disposition of the fleet. Non-professional—and even military minds—need the habit of regarding local and general interests in their true relations and proportions."

In the same Essay Captain Mahan's choice of a locality to serve as a strategical centre in the East falls on Ceylon.

Suitability of Ceylon.

Study of the influence and application of power on oversea expeditions generally.

The application of Sea Power to the employment of oversea expeditions in time of war, includes all the measures that would be taken to secure the safety of the transports during their voyage from the port of departure to the point selected for disembarkation, and for the due arrival of such supplies, stores and reinforcements as would be necessary during the time operations were in progress.

It is obvious that the nature of the protection to be afforded would be dependent on the strategical situation, and the nature of the expedition which was contemplated.

The naval bases and coaling stations maintained by the chief European Naval Powers (excluding Great Britain) in the East are :—

The strategical situation in the East and its effects on the nature of the protection to be afforded by sea power to oversea expeditions.

Russia—Port Arthur, Vladivostok.

France—Jiboutil, Diego Suarez, Réunion, New Caledonia and Saigon.

There are two points of view with which we may regard the grouping of the above,—firstly, to determine their efficiency in number and situation for the maintenance of the direct line of communications between the Suez Canal and the Further East ; secondly, as to their adaptability for use as centres from which raids may be initiated and supported against our commerce.

As regards the first point, I have already pointed out that, while Great Britain's lines of communications are provided with a chain of fortified coaling stations at convenient distances, the only port of this nature belonging to a foreign Power between Suez and the Far East is Jiboutil.

The consequent weakness of position in these regions of any fleet hostile to Great Britain is evident.

In these days of steam, the radius of action of fleets and even single vessels is directly dependent on the facilities they possess for renewing their supplies of fuel.

The absence of coaling stations between Suez and the Far East would practically result in the fleets of Powers hostile to Great Britain, being unable to pass from the Mediterranean to the Further East.

The outbreak of war would therefore automatically restrict them to one side or other of this route, that is, to the Mediterranean, or to the Far East.

In the event of their remaining on the Mediterranean side, the command of the Sea in Eastern waters is at once secured to Great Britain, if, on the other hand, they concentrate in the Far East, they

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on Cape Comorin as centre, and the other leg on Tasmania, and draw round the circle, we shall find that practically the whole of the land forming the three continents of Europe, Asia, and Africa is inside it: the only exceptions being a slice off North-West Africa, part of Western Europe, including Spain, France, England, and Sweden, and the north-eastern corner of Siberia.

Next we may observe the solidity of the land, which is broken into by the North Sea and Baltic in North-West Europe, the Mediterranean dividing Europe and Africa, and the arms of the Indian Ocean known as the Red Sea and Persian Gulf.

The result of this distribution of land and water is, that Europe, which is situated on the opposite side to India, has only one alternative sea route to the lengthy passage round by the Cape of Good Hope; that is to say, by the narrow waters of the Mediterranean and Red Sea, which are still further constricted at the Straits of Gibraltar, the Suez Canal, and the Straits of Bab-el-Mandeb.

This route, however, being the shortest, enables the Power which holds it to work on inter-continental as regards any other Power or Powers which are forced to use the Cape route, and this means it can always anticipate reinforcements sent round by the longer route.

It may be urged that one Power at any rate has another alternative line of communications with the East: but, as Captain Maury points out in his Essay, "Considerations governing the Disposition of Navies," this does not make her independent of the sea passage.

"Russia shares the common lot, while other States have no alternative route whatever, hers is still so imperfect, as not to constitute a valid substitute. Moreover, whatever resources of men and arms may be locally accumulated—coal, provisions, ammunition, and stores of various kinds—reinforcements of vessels, or reliefs to ships disabled by service, or in battle, can only go to sea."

Hence we see, that in the event of war between Great Britain and any European Power or Powers, the power of using the sea communications, becomes a most vital one.

Its importance, indeed, in these days is vastly greater than it was in the times of the last Naval War. Then, indeed, France and Great Britain indirectly contested for the supremacy in India, but to-day it may be almost said that the great centre of interest is the Far East and the Pacific Ocean, and inseparably bound up with it are the commercial routes which lead to it. The thorough route by the Suez Canal is, it must be remembered, a great factor in the situation.

The maintenance of a line of communications of this length requires the establishment of a chain of coaling stations, and of fortified bases, where ships can coal, and

Necessity of establishing Naval bases.

refit for service when disabled, and we shall consequently find that such stations have been established by the Powers interested.

In the case of Great Britain we have Gibraltar and Malta, isolated fortresses situated the one on the Mediterranean bases. the mainland of Spain, and the other on an island, the fruits of Naval supremacy of the past, and dependent on the continuance of Naval supremacy in war in the future.

Other European nations, whose territory is washed by the Mediterranean Sea, have their fortified bases situated in and supported by their own territory.

Even thus, France has found it necessary to supplement her base on Toulon, by another, on the African Coast, at Biserta.

So far we have confined ourselves to the Mediterranean, but when we come to examine the communications in the Red Sea and Indian Ocean and on to the Pacific, we find the position is somewhat reversed, in that Great Britain has the three large territories of India with Ceylon, Australia and South Africa, which support fortified bases; in addition to isolated stations, such as Aden and Hong-Kong.

No other Power has a position in these seas which corresponds to the above, the nearest approaches are France in Madagascar and Tonquin, and Russia at Vladivostock.

Captain Mahan, in his Essay, "Conditions determining the Naval expansion of the United States," shows clearly the relatively great importance of bases which have the support of territory, as compared to those which are isolated; he says:—

"It may be advisable here to notice passingly an argument at Importance of bases supported by times maintained, and often territory. advanced during recent discussions concerning the annexation of the Phillipines, that while such bases of naval action are intrinsically advantageous, there attaches to them no expediency of holding adjacent territory in political tenure. The United States therefore, so it was urged, for the security of her naval situation in Eastern waters, would require in the Phillipines no more than a naval yard. From the military point of view, this is wholly inaccurate. Any military permanent station, land fortress, or naval arsenal, gains immeasurably in strength from the support of a friendly region in which it is situated, because of the contribution to its resources, and the distance at which attack is held. The impressiveness of the word 'isolation' which we all instinctively feel, testifies to this condition.

"Nor is it conclusive against the military argument that the friendliness be of a passive or reluctant character, as of a population subjected to military control. This consideration is, indeed, material to the general conduct of a war, for the force thus engaged in ensuring submission is withdrawn from that available for other operations, but, so long as it is effective in compelling, or inducing the co-operation of the inhabitants, either as peaceful workmen and agriculturists, or more positively in the field, the particular fortress, land or sea, is far stronger than it could be if surrounded by territory under alien government, even though neutral."

The last paragraph requires particular notice, as being more especially the case of the Indian Empire. Though it may be regarded as it is more truly applicable to the case of the Philippines to which it actually refers, as a newly-acquired possession, than to an Empire which has been indissolubly linked to the destinies of the British race for the last hundred years, and which is bound to us by the ties of interest and gratitude created by a just and progressive rule exercised during the whole of that period.

We may also see by our own action, and by that of other Powers, that the value of the possession of territory in support of bases is generally appreciated. At Hong Kong we are endeavouring to include Kowloon in the area under our rule, at Aden we are consolidating our position on the Indian Ocean while Russia is continually working away to add Manchuria to her possessions so as to secure a support to Port Arthur, and Germany, not content with Kiau Chau alone, has grasped a considerable area of land with it.

The value of each of these three territories is then very great considered separately, but when we consider their situation in relation to each other and the oceans in which they lie, we shall understand that their importance is much enhanced.

For, placed at the angles of a nearly equilateral triangle, with sides of some 3,500 miles, they are especially fitted to afford each other mutual support, and to dominate the Indian Ocean; whilst the acquisition of Hong Kong and the naval ports of Japan, the last throw was given to our use by the Treaty with that country, creates an analogous position in the Western Pacific.

The possession of the three bases thus drawn attention to is, however, our only asset, in the strategic situation in the Far East. In addition to these, we have supplementary bases at Aden, Colombo, Hong Kong and Singapore, connecting the Further East (Japanese ports and Wenchai-Wei) with the Mediterranean, by a chain of posts, and our position in this respect is absolutely unique, since the only port belonging to a foreign Power lying on the direct route between Suez and the Further East, is the French coaling station of Djibouti.

Lastly, we must consider the particulars of India's position. She is attached to the main land of Asia, but being at the same time cut off from it by the lofty ranges of the Himalayas, the elevated table-land of Tibet, the sandy wastes and rugged winds of Persia, Baluchistan and Afghanistan, she is possessed of a naturally defensive frontier, whilst at the same time, projecting down into the ocean like a wedge, she possesses two long sea boards which flank the direct road to the Far East.

Also, we may note how central is her position on this route; Ceylon which lies absolutely on it, is almost equidistant from Suez and Shanghai.

Our examination of the geographical and strategical position of

Summary of most important points disclosed in previous examination.

India has thus led us inevitably to the recognition of two important facts :—

(1) That the situation of India must not be considered alone, but

The East a distinct separate sphere

it must be associated with the other great territories we possess in the

East, and that, regarded from this point of view, the Indian Empire forms a point in a strategical situation, which embraces the dominion of the Indian Ocean and Western Pacific, of the near and far East, and which distinctly marks off this portion of the globe, as a separate sphere of action and interest.

(2) The sphere of interest is connected with the heart of the

Importance of its communications with Europe.

Empire by the Mediterranean, and is vitally dependent on this line of communications being kept open.

Thus, supremacy in the Mediterranean becomes a matter of absolute necessity, for the command of the Mediterranean once definitely lost and resting in the hands of our enemy, we should be forced to act on exterior lines, our position in the East would be surely undermined, and all our attempts to regain it would be forestalled.

It is not meant to imply by this that the command of the Mediter-

Reflections on "Command of the Sea." of a war.

anean must, or could be, absolutely secured at the commencement

If we could absolutely secure such command from the first, no war could occur : as it is, no doubt, there would be a period during which superiority would lie first on one side then on another, until finally, as the result of Naval actions, and the receipt of reinforcements, one side would definitely have the upper hand.

A Naval war in which Great Britain was engaged, would almost automatically take place over the whole surface of the navigable waters of the world, since her interests and commerce are world-wide.

Reverses in distant seas would entail the need of reinforcements of ships, men and material, whilst,

Intimate connection between Mediterranean and East.

on the other hand, success, involving destruction, or damage to the

adversary in any quarter, would allow of the Naval strength there being reduced and reinforcements being despatched to the point where most needed—in this instance, to the Mediterranean.

Thus, in Eastern waters, as elsewhere, there would be a species of give and take in the relations existing between it and the Mediterranean ; at one time the East would be called on to contribute to the strength of the position in the Mediterranean whilst, at another, it might be the recipient of reinforcements from that quarter.

But we must also bear in mind, that vital as is the importance of

Possibility of a block in the Canal.

keeping open the direct line of communications with the East,

that it is impossible to absolutely guard against the liability of temporary interruption at the Suez Canal, which may be brought about

by accidents, quite beyond our control ; and we are, therefore, necessarily bound to take all possible precautions in view of this contingency happening.

The result of a temporary stoppage in the Canal would mean temporary dislocation of the Eastern sphere of operations from the central control exercised at home, and the coincident necessity for independent existence on emergency.

But, if we recognise the possibility of such independent existence,

we must logically provide the necessary organisation, to allow of its coming into being automatically, as the occasion for it may arise.

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Suitability of Ceylon.

Study of the influence and application of power on oversea expeditions generally.

The application of Sea Power to the employment of oversea expeditions in time of war, includes

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all the measures that would be taken to secure the safety of the transports during their voyage from the port of departure to the point selected for disembarkation, and for the due arrival of such supplies, stores and reinforcements as would be necessary during the time operations were in progress.

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In these days of steam, the radius of action of fleets and even single vessels is directly dependent on the facilities they possess for renewing their supplies of fuel.

The absence of coaling stations between Suez and the Far East would practically result in the fleets of Powers hostile to Great Britain, being unable to pass from the Mediterranean to the Further East.

The outbreak of war would therefore automatically restrict them to one side or other of this route, that is, to the Mediterranean, or to the Far East.

In the event of their remaining on the Mediterranean side, the command of the Sea in Eastern waters is at once secured to Great Britain, if, on the other hand, they concentrate in the Far East, they

are cut off from reinforcements, except by the Cape route, the disadvantages of which I have already pointed out, and, thus isolated, are liable to be dealt with separately. Moreover, their possible radius of action is limited to within a certain distance of their bases in the Pacific.

If by chance the fleets of France and Russia (united in a hostile alliance against England) were, at the commencement of war, surprised when separately based, say in Vladivostok and Réunion, the British Naval forces, centrally situated, say at Ceylon, would effectually prevent their junction and co-operation, and should crush them in detail.

Hence, it would be their interest to amalgamate their forces before war was declared, and, if necessary, use all the artifices of diplomacy to avert war till the junction were effected, when the situation would revert to the one already depicted.

Under these circumstances, it is evident that expeditions might be directed West of Ceylon, without fear of molestation by any Naval force on a large scale; though precautions against independent cruisers (who might renew their supplies of coal from captured merchantmen) would have to be taken.

On the other hand, any expeditions which had for their objective, points which lay within the radius of action from the hostile bases in the Pacific, would have to be guarded by the presence of a fleet, adequate to deal with the enemy's fleets, stationed so as to cover the route over which they had to proceed, or would have to be delayed until the enemy's fleets had either been brought to action and defeated, or were effectually shut up in their fortified bases.

The comparative values of the mobile forces situated in the East at the outbreak of war would, of course, materially affect the situation; but it must be noted that the power of reinforcing the Naval strength here would lie in the hands of Great Britain alone, and it might therefore be a good tactical move to do this at the outbreak of war, thus securing Naval supremacy and enabling the commander of the Eastern sphere to crush the enemy's forces.

It is possible that these tactics might be met by a refusal to fight, and a retirement under the guns of the naval fortress.

But it is highly probable that want of coal would compel them to fight. Mahan certainly includes coal amongst the stores conveyable by railway, and, based on Vladivostok or Port Arthur, there is, of course, through railway communication to Europe; but, when we consider that the Siberian Railway, never too efficient as a means of communication, would, in the event of war, be the sole means of supplying the Russian Army in Manchuria, and would, in consequence, be fully occupied in transporting military stores, and reinforcements, and, when in addition, we realise the excessive bulk and weight of the coal which would be required to keep the fleets in action, it seems certain that the additional duty of providing the fleet with coal, would prove to be the proverbial last straw and hasten the inevitable breakdown.

The fleets in this case would have no option but to go out and fight, or else remain locked up in harbour with their fires out, and comparatively helpless against attack by an enterprising enemy.

If I have exaggerated the difficulties of their position, and they were able to keep up sufficient supplies of coal to enable them to keep up steam in harbour and still await their own time for giving battle, the question arises, whether the circumstances would warrant the landing of an expedition to invest the base from the land side in co-operation with the fleet.

This appears to me to be a problem, the solution of which would depend on the time available, that is, whether there was a fair prospect of the combined operations proving successful before these reinforcements which had been received on temporary loan from the Mediterranean were required to go back.

The advantages gained by the destruction of the enemy's sea power in the East would be enormous, freeing, as it would, our own forces for employment in such other directions as the circumstances required; whilst our assured local superiority would enable us to conduct at our leisure such oversea expeditions as our resources would admit of. The nature of the protection to be afforded is also dependent on the nature of the contemplated expeditions.

For instance, an attack on an unfortified coaling station as Jiboutil, which would be of the nature of a raid, would not require the employment of a land force for any length of time. The operation, if carried out at all, would be accomplished as rapidly as possible. It is possible it might be effected by the fleet alone, but it is probable that military troops would be necessary, as our reserve of sailors is none too great to admit of any unnecessary casualties being incurred in operations which might as easily be performed by land forces. The protection afforded to such an expedition would therefore be limited to that required to escort it there and ensure its return in safety.

Similarly, in the event of troops being required to reinforce the position in any of our possessions or protectorates, in circumstances, such that, when once landed their wants would be locally supplied, the Naval protection would be limited to that which was required to ensure their safe arrival.

If operations took place, however, in a neutral or hostile country, where the troops could not find local supplies, there would be necessity for the provision of reinforcements and supplies as long as they were so employed.

Description of the circumstances under which oversea expeditions may be undertaken.

Military expeditions over sea may be carried out under the following varying circumstances:—

- (1) As punitive expeditions against savage tribes within our own jurisdiction, or, in any circumstances, which do not entail the opposition of other Naval Powers—as in Somaliland.
- (2) Expeditions against a more or less civilised enemy, unpossessed of sea power and unsupported by alliance with Naval Powers, as in the Boer and China Wars.

- (3) Expeditions against territories occupied by a civilised Power, which has also a Navy, that either by itself or, as the result of alliances with other Powers, is capable of effectively disputing the command of the Sea, as occurred in Egypt in 1800, and in the Peninsular War.

The first two cases may be dismissed as irrelevant to the subject of the Essay under discussion, the third presupposes a state of war existing, and a contest taking place for supremacy on the Sea.

Expeditions carried out under this latter eventuality may again be divided up for consideration under the following headings:—

- (1) Expeditions against coaling stations or naval bases, with the object of paralysing the movements of the enemy's Navy and of their commerce.
- (2) Expeditions carried out in relation to the defence of our own territory, either directed against the enemy's land communications, or of the nature of counter-strokes delivered with the object of relieving the pressure on the defence.
- (3) Expeditions directed against territory in the occupation of the enemy, with the object of bringing such pressure to bear as may be sufficient to compel them to sue for peace.

In some cases, of course, the acquisition of such territories may be the direct object to be attained.

Let us now see what opportunities would offer for the employment of expeditions in the East, in the event of Great Britain being engaged in a Naval conflict; and since it is necessary for our purpose to specify possibly existent conditions, let us, acting on the axiom that the greater contains the less, suppose, that the coalition arrayed against her is the most formidable that we can conceive as likely to take place.

Influence and application of sea power on expeditions based on our territories in the East.

Writing at the present time, when Japan and Russia are within an ace of settling their differences by an appeal to the sword, and, bearing in mind all the possible complications which may arise involving ourselves and others, there is less extravagance than would

Supposition that war takes place between England with Japan and Russia with France.

otherwise be the case, in the supposition that Great Britain finds herself placed side by side with Japan to face Russia and France on questions of Eastern politics, whilst Germany lies waiting, and must be reckoned with as a possible antagonist, and America, though she may sympathise with us, cannot be claimed as an active partner.

It is only by working on some such hypothesis as this, that we can realise the different factors which go to make up the problem

we are endeavouring to study, or perceive the weak points in the naval dispositions of our possible adversaries, to grasp where and how we can best strike against their interests, or their efficiency, and, at the same time, note where we, in our turn, lie open to attack, and the measures of precaution which are thereby rendered necessary.

And, if any further apology is needed for this method of investigation, I would point to Lord Wolseley's remarks in the "Story of a Soldier's Life," on the value of the quality of imagination in military matters, that is, the power of foreseeing the moves that the enemy is most likely to make, so that measures may be taken in time to defeat them.

Having already examined the salient points in our own strategical position in Eastern waters, we will now proceed to glance at those of our possible adversaries first, on the supposition that they consist of France and Russia, and secondly, that Germany has thrown in her lot against us.

Our examination will be necessarily confined to the bases, coaling stations, and territory in their occupation, as the mobile force is not a constant factor, but will vary according to the fortunes of war in other parts of the globe.

Suffice it to remark that Russian interests are at any rate, at

present, centred in the Far East, which is clearly shown by the fact that the more efficient and by far the larger part of her Baltic Sea fleet is now in the China Seas, and gives her there a practical equality of power with Japan. With France the case is different. In the first place, the paramount importance of the Mediterranean, and then her varied interests in different portions of the globe, bring it about that she would only be able to assist Russia in the East with such force as would be available when her own more vital interests elsewhere had been guarded. The same considerations apply to the strength of the British fleet in Eastern waters, which would vary in proportion to the extent in which the Naval war in other parts of the globe, more particularly in the Mediterranean, was progressing favourably to our interests.

I have laid bare the weakness of the enemy's position in the East

owing to the want of facilities for coaling between Suez and the Far East, except at the unfortified station held by France at Jibouti, and it is clear that immediate action should be taken to destroy this last source of supply, and thus finally localise their Naval strength to the waters of the Pacific.

In a review of the military situation in the Far East by the military correspondent of the "Times," which appears in the issue of that Journal of the 19th January 1904, the possibility is contemplated of the stream of Russian cruisers, transport, and coaling ships, which are, as I write, making their way to the East, being employed to establish a flying base and coal depôt, mainly for the purpose of raiding Japanese commerce.

He writes :—"What is the mission of these vessels ? Steam and the telegraph, let alone wireless communications, now permit of combinations on Sea undreamt of in the good old days, and it is in Admiral Alexieff's power to order a concentration of his two chief divisions, now separated by 1,000 miles of sea, and to draw under his wings such ships from the West as arrive before the outbreak of war. But the Russian Admiral can hardly be so sanguine as to hope to effect a junction in the Korean Straits." * * * * * "Now it is certain that the eventuality of war with Japan, has been in the mind of the Russian Admiralty for many years, and in view of reports recently received that the Vladivostok cruisers are ready for sea, we are forced to conclude that a set purpose underlies their position, no less than that of the strangely spun-out line of ships which are slowly drawing towards the scene of action from the West." * * * "Should negotiations drag on, the line of steamers from the West will doubtless continue to reach Russian harbours in the Pacific as they are beginning to do now."

"But the first note of war may deflect them from this route, and it is possible that both the Vladivostok ships, and many of those now coming up from the West, may have an independent mission, *vis.*, the devastation and destruction of Japanese sea-borne trade. * * * The report that there are 15,000 picked men on board the fleet of transports already under way, is probably near the truth." * * * "One may assume the Russians have already selected some one or more of the many Islands with which the Pacific is studded, and that these will be well off the track of the ocean tramps, and possess secure anchorage, good water, and adaptability to defence Ships, colliers, and store vessels can here assemble from distant waters, and men and guns be landed to render the flying base secure."

I have taken notice of this theory, thus propounded by the military correspondent of the "Times," because it suggests a possible manner in which nations hostile to Great Britain may seek to remedy their deficiency in coaling stations and bases on the lines of communication with the East.

It may be remarked there are a number of small islands where we have planted our flag apparently for the mere purpose of preventing their acquisition by others, whose interests may be hostile to ours. Such are Perim and Socotra. This action on our part prevents their being occupied and strengthened by fortifications previous to a war, but since we have allotted no garrisons to them, nor otherwise strengthened them, they are liable to capture for the purposes we have just considered.

As a general rule, of course, it is to the Navy we trust to prevent such action as this. The naval scouts would presumably be in touch with any movement of ships or stores, when war was declared and even before this, when war was imminent, and any schemes of the magnitude of those predicted by the military correspondent of the "Times," should hardly be able to escape detection.

There is no doubt that as a nation we are inclined to attribute exceptional foresight, not to say cunning, to the foreigner in general

and the Muscovite in particular, and this especial instance may prove an occasion when this tendency has led the writer to give credit for such astuteness, where it is not really due. But the fact remains of the possibility of some such scheme being attempted in the future, when if by any chance it escaped the attention of the Navy till the coup had been actually carried out, the necessity of operations in a hitherto unexpected direction would at once become manifest.

I have also incidentally mentioned Réunion and Diego Suarez, but it is necessary to examine the position and value of these ports a little more closely.

Their situation lying on the lines of communication between India and South Africa, and flanking the approaches from Aden to Ceylon, and from South Africa to Australia, renders them especially suitable as bases for the action of independent cruisers destined to prey on our commerce in the Indian Ocean.

The destruction of Jibouti, which should not be a difficult operation, at once cuts these ports off from communication with the Mediterranean, and will prevent the possibility of cruisers being despatched by this route to take up this position, from which they would be able to do no inconsiderable amount of damage.

But this does not dispose of the possibility of independent cruisers making their way thither, either from the Pacific, or round by the Cape.

The presence of a superior force of cruisers based on Mauritius would, however, have the effect of either compelling them to remain shut up, or to run the chance of capture whenever compelled to return to the base for coal or repair.

The co-operation of the Germans would not directly affect the strategic position in the East.

Extent to which the situation is affected, in case of Germany joining Russia and France.

The addition of Kiao Chau would not really afford a new base, as it is situated so close to Port Arthur,

nor do the other German possessions in the East Indian Archipelago extend the radius of action of this triple alliance to any appreciable extent.

Indirectly, however, the addition of the German fleet would, of course, have an enormous effect on the situation of affairs. Compelling a proportionate force to be told off to keep them in check, the immediate result of her alliance would probably be a diminution of our strength in the Mediterranean, and the calling for reinforcements from other quarters to restore the balance of power in that direction.

Thus, the initial period of the war, *vis.*, the struggle for supremacy in the Mediterranean, would, at the very least be prolonged, even if it did not temporarily go against us; and, as already shown, the connection between the Mediterranean and the East is so intimate, that the situation in the latter could not fail to be adversely affected.

Nevertheless, unless indeed our hold on the Mediterranean were permanently destroyed, our position in the East, owing to local strategic advantages, must still be proportionately strong. Advantages of position, neutralizing to a great extent any disparity in numbers,

that might temporarily result as the consequence of such action on the part of Germany.

I have placed the discussion of situation and grouping of coaling stations and bases in the forefront, for the reason that the operations directed against them would necessarily be the first undertaken, inasmuch that the results gained thereby would form stepping stones towards further action, and the establishment of that necessary local superiority which we should be striving for at the commencement of a campaign.

Expeditions connected with the defence of our territories or protectorates. I will next take into consideration expeditions which might become necessary in defence of some of our vital interests in this sphere of our operations.

In considering a war of the nature of the one we are at present occupied in examining, if we wish to ascertain at what points we are ourselves most open to attack, it is necessary that we should regard the situation from the point of view of our adversaries, as well as from our own.

Putting ourselves then in the position of Russia to start with, that is to say of a Power which is possessed by an almost illimitable ambition, which, combined with a special aptitude for assimilation of other and inferior races, is driven on to continual expansion, in order to force an outlet to the open sea elsewhere denied to it, we find our view of the situation in the event of war arising in the Far East with the greatest Naval Power over this very question of acquisition of territory affording access to the open ocean, will be somewhat of the following description :—

“Our legitimate! ambitions are balked by the Power who is continually in direct opposition to us, our Navy, incapable of effective action at present, owing to immature development, and inferiority of positions, cannot be relied on to support our demands, we must, therefore, employ our other arm of offence in which we are relatively strong, and utilise it to strike at such of the enemy's interests as lie within its radius of action.

This reasoning will, first of all, naturally lead us to contemplate a land attack on India, the possibility of which we have long entertained, and for which purpose schemes of operations have already been fully matured and prepared.

The necessity for expansion of our boundaries to include a sea coast and ports with free egress to the ocean has been temporarily checked towards the Pacific, but still remains a potent ambition driving us on, if not in that particular direction, then in some other, where we shall meet with less resistance.

Northern Persia is already fast coming under our influence, and Southern Persia must be secured.

These movements can be carried out simultaneously and in co-operation with our other lines of advance, and will aid in keeping all England's Indian troops occupied, so that they will not be available for offensive measures.”

Pursuing the same method, we will now view the situation through French spectacles. It will then, probably, be presented to us in this manner:—

"Faithful to our alliance with Russia we have entered with her into a war against our old-time foes. Our Naval force is insufficient to enable us to secure a preponderance of force everywhere, our vital interests lie in the Mediterranean, and it is there we must secure local supremacy.

"This policy is also in accord with our treaty obligations, and we shall best help our ally by concentrating our strength in this direction.

"The result of a successful war here will materially weaken, if not crush, the British Power in the East, and the fruits of victory will amply reward us for our exertions.

"Unsupported by sea power Gibraltar and Malta must inevitably be lost to the enemy, and we shall also be able to land a force in Egypt and establish a French occupation there, thus consolidating our empire in North Africa.

"Our action in the East itself, must be strictly limited to the force we can afford to detach when our more pressing necessities have been provided for, but we can probably spare, from the first, independent cruisers which, based on Réunion and Diego Suarez, will be able to inflict loss on the enemy's commerce, and draw off a portion of their naval strength in the East from action against our friends."

If in the above I have rightly interpreted the point of view of our possible adversaries, it appears evident that in a war against these two Powers we might find ourselves compelled to take measures for the defence of Egypt and India.

As regards the first, since the occasion could not arise whilst we possessed unquestioned superiority in the Mediterranean, it is evident that any necessary reinforcements would have to come from the East.

As regards an invasion of India, the particular point which concerns the topic we are discussing is whether (our defence would be of a purely defensive character, or whether) we should be better advised to combine with it such offensive action as sea power would enable us to impart to it.

In this connection it is worth while bringing to notice the peculiar conditions of our tenure of the Indian Empire.

Reasons for our adoption of an offensive defence of India. A collection of diverse races, bound to each other by no ties of language, or religion, are held together under the rule of an alien race.

The previous history of the country, prior to our advent, is a mere record of invasions and conquests, which have resulted in the main bulk of the population being accustomed to be ruled from outside.

Our sway has now lasted for such a period that it seems the most natural thing in the world; it is not a selfish government, but directed to the best of our ability to serve the true interests of the governed, and yet it cannot be said to be the government of their choice; it is, in fact, imposed on them, whether they will or no.

It is not, indeed, a rule imposed at the point of the bayonet, but it is supported by armed forces, partly British troops and partly native mercenaries.

That the native soldier is a pure mercenary can hardly be questioned.

He is loyal and faithful to his salt, but this is because it is his interest to be so, he is well treated, regularly paid, clothed, and pensioned, and in case of disablement, or death on service, his family are provided for.

As long as the British Raj is the unquestioned, unchallenged paramount Power, his interests all lie in its service.

But, in case of a losing fighting in India, he cannot be regarded as fighting for his country, and therefore rendered more and more stubborn, as he falls back to the defence of his native land.

On this account, it would be the worst possible policy to sit down and await attack, to conduct, that is, a purely passive defence, the very waiting and inaction would tend to demoralize the native troops, to inculcate a suspicion that we were doubtful of success.

On the other hand, they would be eager in an offensive campaign, and would move with confidence against any force under the tried leadership of their British officers.

Hence, an attack on our Indian Empire would entail offensive action on our part, which would be directed, either against the invaders' communications, or any point which would compel him to detach part of his force, and thus lessen the pressure on the defence.

As soon as we had developed the Naval situation, already in our favour, still further to our advantage by the operations I have previously described, the resultant

sea power would enable us to land a force in Southern Persia, which would oppose any advance of Russia's armies from Northern Persia, and, if sufficiently strong to drive them back, would threaten her communications between Merv and the Caspian.

As sea power developed still further in consequence of the receipt of additional acquisitions to our Naval strength in the East, it would also enable us to land forces in co-operation with Japan for the attack of Port Arthur and Vladivostok.

The last would at first sight appear a very distant operation to have any effect with regard to relieving the pressure on India, but it would certainly fulfil one object, namely, to compel Russia to employ a number of troops who would otherwise be available on the Indian frontier.

The Crimean War is an instance of how Russia in the past has become so exhausted by the necessity of spending a vast number of troops and amount of treasure at a great distance, as to be compelled eventually to accept unfavourable terms of peace.

The task of maintaining her forces in Manchuria, involving the protection of the railway (estimated by the "Times" military correspondent on the 14th January 1904, at 900 versts from Baikalia to

Kharbin, and 4000 versts, including branch lines, to the sea) is a tremendous undertaking, and will grow more and more difficult under the stress of war, as the railway, never in the best working order, becomes congested with supplies and reinforcements.

On the other hand, under the influence of sea power our lines of communication leading from the East to the Pacific, will be open and free from molestation, and the problem of supplying an army by sea is one which we have already solved in the South African Campaign.

We now come to the consideration of such expeditions as may be directed during the last stage of the war, that is to say, when our Naval supremacy has been firmly established.

Our object will necessarily be to force the enemy to sue for peace as early as possible, and it is conceivable that their submission would be protracted even after the Naval war had gone against them, if we were unprepared to carry the war with land forces into their territories, but were satisfied with the blockade of their ports, and the consequent loss inflicted on their commerce.

The chief possessions of France and Russia in the East which would be laid open to attack, as the consequence of sea power being assured to us, would be—

France—Madagascar, New Caledonia and Tonquin.

Russia—Port Arthur, Vladivostok, and Manchuria, whilst, if Germany had joined forces against us, she would, in case of failure, be liable to lose her African possessions, Samoa and the Caroline Islands.

In selecting, as we should, once sea power was established, be able to do, the point or points for attack, we should probably be guided by two considerations.

First whether any particular power, having little to gain and much to lose by a continuance of the war, would be rendered more especially inclined to treat with us and abandon hostilities as the result of further pressure.

Then, whether any particular territory in their possession was by its position, or for other reasons, of any such particular importance to us, as to justify our wishing to permanently annex it.

At the same time, both these considerations would be subservient to the general one, that such points as we attacked should be those at whose loss the present occupiers would be most concerned.

Russia, according to our supposition, the fount and origin of the war, being essentially a land Power, would suffer the least in consequence of British sea power being established. Her ambitions in the Far East would be checked no doubt, but her commerce would not have suffered to a like extent to that inflicted on the sea-borne trade of her ally, and she would still be the possessor and director of vast masses of land troops, it is therefore morally certain that defeat at sea would drive her on to utilise these to continue the struggle by land.

France, on the other hand, would have nothing to gain by a continuance of the struggle, for once her Naval power was destroyed, her various possessions would be at the mercy of the superior sea power and she would therefore be the more inclined to treat for peace, in good time, so as to avoid further loss.

If Germany had joined the alliance against us, it could only have been with the hope and expectation of seeing our sea power, which she finds the greatest obstacle to her newly-developed world politics overthrown, or at least weakened.

The establishment of our sea power on a yet firmer basis, would leave her helpless for offence against us, and her newly-acquired territories in Africa and the East Indies would lie open to attack, thus providing the fulcrum on which we could work the lever of pressure to force her to accept terms of peace.

It thus appears probable, that the expeditions in the last phase of the war, when our sea power had been firmly established, would be directed against Russia and Germany in the event of France being eliminated, as the result of the Naval campaigns, but if France was still inclined to continue hostilities, her possessions would also furnish us with points for attack.

The possible campaigns, that might under these circumstances, be contemplated by us would therefore be :—

- (1) against Russia in Manchuria ;
- (2) against the German-African Colonies ;
- (3) against Madagascar, Tonquin or New Caledonia.

It may be urged that the whole of this argument is absurd, that An argument for considering the pre- the British Empire could not en-vious suppositions are not exaggerated. dure the assault of such a coalition as that we have been imagining without help of extraneous Powers in addition to Japan ; and even if she were successful in the Naval war, such expeditions as have been suggested are entirely beyond her resources.

I am not inclined to accept this view of the impossibility of such a coalition, whilst as regards the question of extraneous help, we have, rightly enough no doubt, systematically avoided alliances, except as regards Japan, and are consequently in no position to rely on outside assistance, the inclusion of any such extra factor in the situation we have imagined would also, for the purposes of this Essay, only needlessly complicate the situation, and would not materially alter it.

As regards the ambitious nature of the possible expeditions I have enumerated, it must be borne in mind that the struggle thus depicted would be to us a matter of life and death, and our resources would have to be strained to the uttermost.

In any case a peg was required on which to hang the various details, which, regarded as a whole, constitute a summary of the expeditions in Eastern waters which might conceivably be undertaken, and of their dependence on and relation with the due establishment of naval superiority ; I have therefore adopted this expedient, which having served its turn may now be abandoned.

Summary of expeditions alluded to.

Briefly tabulated for the convenience of future reference, the various expeditions I have alluded to in the preceding pages are:—

(1) COALING STATIONS.

French.—Jiboutil, Diego Suarez, Réunion and possibly Tonquin ports and Caledonia.

Russian.—Port Arthur and Vladivostok.

German.—Possibly Samoa and the Carolines.

(2) EXPEDITIONS CONNECTED WITH DEFENCE OF OUR TERRITORIES AND PROTECTORATES.

(a) Egypt.

(b) S. Persia.

(c) The country lying immediately behind Port Arthur and Vladivostok.

(3) EXPEDITIONS AGAINST ENEMY'S TERRITORIES.

French.—Tonquin and Madagascar.

Russian.—Manchuria.

German.—African protectorates.

Examinations of sources from which troops for such expeditions would be drawn.

It will be observed that no attempt has yet been made to show from what sources the troops for these various expeditions would be drawn. I have deliberately left the discussion of this point, in order to avoid the confusion consequent on its inclusion, whilst pursuing the general argument of what enterprises in Eastern waters are possible and likely to occur under the influence and application of sea power during its various stages of development.

Operations against naval bases or coaling ports are, generally speaking, essentially Naval in character, but when the object is to capture and destroy, and not merely to mask them, and the employment of landing parties is essential to success, the co-operation of military troops is generally to be desired, as sailors are too valuable to be risked in such operations and should be reserved for their more legitimate duties on the sea.

Jiboutil is a case in point, for this purpose, troops might be drawn from the Aden garrison, since their services would only be required for a very short period. If, however, this was considered too great a risk, they would be supplied from Bombay.

Similarly, Australian troops might be utilised for seizing New Caledonia.

It is presumed that the Egyptian garrison would be reinforced at the outbreak of war, but in the event of hostilities actually taking place there, the despatch of further reinforcements through

the Mediterranean might be temporarily impossible; in which case they would have to be provided from the Eastern sphere.

It would severely tax the resources of India to provide the whole of such additional troops, and they should therefore be partly drawn from South Africa.

For operations of the magnitude of those contemplated in S. Persia, Tonquin and Manchuria, Madagascar, S. Persia, Manchuria, Madagascar or Tonquin, the whole of our

available resources in the East would have to be drawn on.

In S. Persia and Madagascar the Indian Army would require assistance from the Cape, and in Tonquin and Manchuria from Australia.

South Africa should be able to conduct the operations against the German protectorates, without exterior assistance.

German-African colonies.

I must admit that the foregoing appears to be a summary and inadequate method of dealing with the manner in which the necessary troops for these expeditions could be obtained. But if we consider for a moment the situation, as it actually exists at the present moment, and as it would exist if war broke out at once, we cannot but realise, that the absence of organised Colonial forces, and of any machinery for securing co-operation either between the naval and military operations, or between the Indian forces and those which would be hastily, and therefore inefficiently and expensively, raised in the Colonies, would result in our efforts being limited to a number of isolated enterprises, wholly wanting in coherence, and in the sustained endeavour which is so essential if we are to secure an adequate return for the sacrifices we should be called on to make.

Under these circumstances, I have felt it would be a mere waste of time to speculate on the amount of assistance which would be required, or which would be available under circumstances which do not at present exist.

A general conclusion arrived at that previous preparation must be made to effect co-operation—various measures proposed to effect this.

It would be impossible also, within the limits of this Essay, to discuss the details of the half-dozen or so expeditions that have been alluded to, nor would there be any advantage accruing from such an attempt; it is amply sufficient for my purpose, if I have established the fact that for the conduct of such expeditions we should have to secure the co-operation of all our available resources in the East.

The first step to this has I may say been quite recently taken, as announced by the Prime Minister in his speech at Manchester

A first step already taken.

on the 12th of January 1904, where, in referring to the Committee on Imperial defence, he said:—

"The Minister for War for Canada came over to this country to discuss with the Colonial Office and War Office, principally the War

Office, certain important questions connected with the development of the Canadian Militia. " * * * * * " As soon as I got information that this distinguished Minister was coming over from Canada to discuss these questions with the department, I immediately, with the consent of the Cabinet, asked if he would attend a meeting of the Defence Committee to discuss them not as a witness, not as a suppliant, but as a member ; and as a member the Canadian Minister for War joined in our deliberations." * * * * *

" I do not see why that which is applicable to Canada, applicable to Australia, should not be extended to India, and to every part of His Majesty's dominions."

This I urge is the germ of an idea, the fruit of which should make it possible in future for full and complete co-operation to take place between the different units which go to compose the British Empire.

But a Committee for Imperial Defence even when it is composed,

Necessity for establishment of local military strategic centre.

as suggested by Mr. Balfour, of members representative of the different States of the Empire, while

it may settle large questions of Imperial military policy and bring together the views of the various States on such policy, is not the instrument best fitted for going into the details of organisation, etc., without which the skeleton of the policy still consists of dry bones, in place of being a living, breathing organism.

For this reason, and also because as I have already explained, the East is a separate sphere, liable to be temporarily cut off in time of war, it is necessary to inaugurate a local military strategical centre as well as a Naval one.

The position most suitable for the Naval one has been described

India's claims to be selected as local military centre.

as Ceylon, and it now remains to show that India is best fitted for the purpose as regards Military

operations.

Her claims to hold this position may be summarised as under:—

- (1) She possesses the largest and most homogenous Military command in the East.
- (2) The existence of the Indian Head Quarter Staff, and Intelligence departments.
- (3) The presence of a large number of our most distinguished and proved Commanders in the field.
- (4) She possesses a great organised department of Supply and Transport, with unique experience of service in all the possible theatres of war in the East.
- (5) The existence of the only establishments we have in the East, for the manufacture of ammunition, and the material required for war.

In addition, however, to the necessities of securing the co-operation of the different Naval commands in Eastern waters, by the

Necessity for co-operation between Naval and Military forces.

establishment of a Naval strategical

centre, and for the co-operation of the land forces of India, Australia and South Africa by similar methods, there yet remains the equally

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important task of securing co-operation between the naval and military forces ; and the question arises how can this be reconciled with the establishment of separate naval and military strategic centres, the one situated in Ceylon and the other in India.

The answer I would give to this problem is, that Ceylon is geographically a dependent on India, and that there appears to be no valid reason it should not be politically united and placed under the

Combined Naval and Military centre
in Ceylon advocated.
Political union of Ceylon and India
proposed.

sway of the Indian Viceroy.

Under these circumstances, the military strategic centre of the East, under which term I now include both Naval and purely Military interests would lie in Ceylon, which as forming a portion of the Indian Empire, would be at once fortified in her position as a Naval centre, as well as fitted for the location of the centre charged with the conduct of the purely Military interests connected with the Eastern sphere.

The mere nomination of a particular locality to be regarded as a strategic centre, would not by itself have any particular effect in securing these results; it must be made an administrative centre, charged with the actual work of originating and perpetuating that co-operation of forces for which we are striving.

And with this object in view, I would submit a proposal that a local Committee of Defence should be established, charged with the preparation of all details connected with the defence of our interests in the East, strictly subordinate to the Imperial Committee of Defence located in the heart of the Empire, and employed to supplement the labours of that body.

As to the constitution of this Committee, I would propose that the chief Naval Commander in Eastern waters should be the President, and that members should be provided

Proposed constitution of local Committee.

by each of the three territories concerned to represent them, the member furnished by the Indian Empire being a distinguished General Officer specially selected for this particular purpose.

If the chief Naval Commander was for any reason unavailable, the President should be the Commander-in-Chief in India, and a specially selected Admiral should replace the military member furnished by the Indian Empire, but this constitution would be decidedly inferior to that first suggested.

A Committee constituted as above, locally situated and duly authorized to correspond with the various Governments concerned, should be able to work out all the details of the forces, Naval and Military, which the different States would be prepared to furnish in case of war, and arrange the schemes of the operations in which they might be called on to partake.

The South African war has given us some idea of the resources in men and food-supplies, etc., which are lying latent in our various

self-governing colonies, but the hasty improvisation of forces which in that case, owing to want of previous organisation, had to be resorted to should serve as a warning for the future.

There are a thousand and one details which this Committee would have to deal with, the mere previous settlement of which would have the happiest effects in facilitating the creation and then the mobilisation of Colonial forces, but the bare statement of them would not serve any useful purpose, while a full discussion is quite out of the bounds of this Essay.

One particular instance may, however, be referred to as showing to a slight extent the nature of the labours which would devolve on such a body.

A previous settlement as regards the terms of service of Colonial troops, including the settlement of their pay when embodied, retaining fee in peace time and payment for actual work accomplished in regard to their training, would result not only in a saving of public money, but also in the avoidance of much misunderstanding and subsequent heart-burning ; it would also be a step towards getting a clear appreciation of the numbers and value of the troops who would be forthcoming, and thus permit an accurate estimate to be made of the enterprises which our resources should enable us to attempt with a fair prospect of success.

The association of the self-governing Colonies with the Empire in the defence of Imperial interests, could not but have the happiest effect in contributing to that closer union of the parts which go to make up the Empire of which we are all so proud. The realisation of a common destiny, and of common aims cannot but have its effect in welding the Empire together.

The Prime Minister in his speech at Manchester on the Imperial Defence Committee on the 12th January 1904, puts this point of view very clearly before his audience :—

“ It will be for those who succeed me as Chairman of the Committee of Defence, to bring those germinating principles to their best result. I think that the Government, I think that the Party have reason to hope and some ground for believing, that if those who have to manage, and are responsible for this institution, are able to rise to the height of the opportunity which presents itself in the area which may be opened to us in the direction of closer union with every part of the Empire to which we belong, good results will follow.”

“ The thought of closer union with the Colonies has been dominating us through many months, has been the theme of eloquent speeches. It has, I venture to say, appealed to the highest and most unselfish instincts of our country. * * * Nevertheless, I believe even those who are most opposed to the fiscal union, for which I have so often expressed a desire—even those who cannot consent to the expedients for attaining it which have been suggested may see in this new development, something that will carry out an ideal common to every citizen of every part of the Empire, and which at all times may

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But, in case of a losing fighting in India, he cannot be regarded as fighting for his country, and therefore rendered more and more stubborn, as he falls back to the defence of his native land.

On this account, it would be the worst possible policy to sit down and await attack, to conduct, that is, a purely passive defence, the very waiting and inaction would tend to demoralize the native troops, to inculcate a suspicion that we were doubtful of success.

On the other hand, they would be eager in an offensive campaign, and would move with confidence against any force under the leadership of their British officers.

Hence, an attack on our Indian Empire would entail offensive action on our part, which would be directed, either against the invaders' communications, or any point which would compel them to detach part of his force, and thus lessen the pressure on the defence.

As soon as we had developed the Naval situation, already in our favour, still further to our advantage by the operations previously described, the resulting sea power would enable us to land a force in Southern Persia, which would oppose any advance of Russia's armies from Northern Persia, and, if sufficiently strong to drive them back, would interrupt communications between Merv and the Caspian.

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Kharbin, and 2,000 versts, including branch lines, to the sea) is a tremendous undertaking, and will grow more and more difficult under the stress of war, as the railway, never in the best working order, becomes congested with supplies and reinforcements.

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Expeditions directed against enemy's territory. of the war, that is to say, when our Naval supremacy has been firmly established.

Our object will necessarily be to force the enemy to sue for peace as early as possible, and it is conceivable that their submission would be protracted even after the Naval war had gone against them, if we were unprepared to carry the war with land forces into their territories, but were satisfied with the blockade of their ports, and the consequent loss inflicted on their commerce.

The chief possessions of France and Russia in the East which would be laid open to attack, as the consequence of sea power being assured to us, would be—

France—Madagascar, New Caledonia and Tonquin.

Russia—Port Arthur, Vladivostok, and Manchuria,

whilst, if Germany had joined forces against us, she would, in case of failure, be liable to lose her African possessions, Samoa and the Caroline Islands.

In selecting, as we should, once sea power was established, be able to do, the point or points for attack, we should probably be guided by two considerations.

First whether any particular power, having little to gain and much to lose by a continuance of the war, would be rendered more especially inclined to treat with us and abandon hostilities as the result of further pressure.

Then, whether any particular territory in their possession was by its position, or for other reasons, of any such particular importance to us, as to justify our wishing to permanently annex it.

At the same time, both these considerations would be subservient to the general one, that such points as we attacked should be those at whose loss the present occupiers would be most concerned.

Russia, according to our supposition, the fount and origin of the war, being essentially a land Power, would suffer the least in consequence of British sea power being established.

Her ambitions in the Far East would be checked no doubt, but her commerce would not have suffered to a like extent to that inflicted on the sea-borne trade of her ally, and she would still be the possessor and director of vast masses of land troops, it is therefore morally certain that defeat at sea would drive her on to utilise these to continue the struggle by land.

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If Germany had joined the alliance against us it could have been with the hope and expectation of seeing our sea power which she finds the greatest obstacle to her newly-developed land politics overthrown, or at least weakened.

The establishment of our sea power on a yet firmer basis, would leave her helpless for offence against us, and her newly-acquired territories in Africa and the East Indies would lie open to attack thus providing the fulcrum on which we could work the lever of pressure to force her to accept terms of peace.

It thus appears probable, that the expeditions in the last phase of the war, when our sea power had been firmly established, would be directed against Russia and Germany in the event of France being eliminated, as the result of the Naval campaigns, but if France was still inclined to continue hostilities, her possessions would also form a us with points for attack.

The possible campaigns, that might under these circumstances be contemplated by us would therefore be:—

- (1) against Russia in Manchuria;
- (2) against the German-African Colonies;
- (3) against Madagascar, Tonquin or New Caledonia.

It may be urged that the whole of this argument is absurd, that

An argument for considering the present the British Empire could not survive the assault of such a coalition as that we have been imagining without help of extra-continental Powers in addition to Japan; and even if she were successful in the Naval war, such expeditions as have been suggested are rather beyond her resources.

I am not inclined to accept this view of the impossibility of such a coalition, whilst as regards the question of extra-continental help, we have, rightly enough no doubt, systematically avoided all such except as regards Japan, and are consequently in no position to rely on outside assistance, the inclusion of any such extra factor in the situation we have imagined would also, for the purposes of this Essay, only needlessly complicate the situation, and would not materially alter it.

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Summary of expeditions alluded to.

Briefly tabulated for the convenience of future reference, the various expeditions I have alluded to in the preceding pages are:—

(1) COALING STATIONS.

French.—Jiboutil, Diego Suarez, Réunion and possibly Tonquin ports and Caledonia.

Russian.—Port Arthur and Vladivostok.

German.—Possibly Samoa and the Carolines.

(2) EXPEDITIONS CONNECTED WITH DEFENCE OF OUR TERRITORIES AND PROTECTORATES.

(a) Egypt.

(b) S. Persia.

(c) The country lying immediately behind Port Arthur and Vladivostok.

(3) EXPEDITIONS AGAINST ENEMY'S TERRITORIES.

French.—Tonquin and Madagascar.

Russian.—Manchuria.

German.—African protectorates.

Examinations of sources from which troops for such expeditions would be drawn.

It will be observed that no attempt has yet been made to show from what sources the troops for these various expeditions would be drawn. I have deliberately left the discussion of this point, in order to avoid the confusion consequent on its inclusion, whilst pursuing the general argument of what enterprises in Eastern waters are possible and likely to occur under the influence and application of sea power during its various stages of development.

Operations against naval bases or coaling ports are, generally speaking, essentially Naval in character, but when the object is to

Naval bases.

capture and destroy, and not merely to mask them, and the employment of landing parties is essential to success, the co-operation of military troops is generally to be desired, as sailors are too valuable to be risked in such operations and should be reserved for their more legitimate duties on the sea.

Jiboutil is a case in point, for this purpose, troops might be drawn from the Aden garrison, since their services would only be required for a very short period. If, however, this was considered too great a risk, they would be supplied from Bombay.

Similarly, Australian troops might be utilised for seizing New Caledonia.

It is presumed that the Egyptian garrison would be reinforced

Egypt.

at the outbreak of war, but in the event of hostilities actually taking place there, the despatch of further reinforcements through

the Mediterranean might be temporarily impossible, in which case they would have to be provided from the Eastern sphere.

It would severely tax the resources of India to provide the whole of such additional troops, and they should therefore be partly drawn from South Africa.

For operations of the magnitude of those contemplated in S. Persia, Tonquin and Manchuria, Madagascar, or Tonquin, the whole of our available resources in the East would have to be drawn on.

In S. Persia and Madagascar the Indian Army would require assistance from the Cape, and in Tonquin and Manchuria from Australia.

South Africa should be able to conduct the operations against the German protectorates, without exterior assistance.

I must admit that the foregoing appears to be a summary and inadequate method of dealing with the manner in which the necessary troops for these expeditions could be obtained. But if we consider for a moment the situation, as it actually exists at the present moment, and as it would exist if war broke out at once, we cannot but realize, that the absence of organised Colonial forces, and of any machinery for securing co-operation either between the naval and military operations, or between the Indian forces and those which would be hastily, and therefore inefficiently and expensively, raised in the Colonies, would result in our efforts being limited to a number of isolated enterprises, wholly wanting in coherence, and in the unobtainable endeavour which is so essential if we are to secure an adequate return for the sacrifices we should be called on to make.

Under these circumstances, I have felt it would be a mere waste of time to speculate on the amount of assistance which would be required, or which would be available under circumstances which cannot at present exist.

A general conclusion arrived at that previous preparation must be made to effect co-operation—various measures proposed to effect this.

It would be impossible also, within the limits of this Essay, to discuss the details of the half-dozen or so expeditions that have been alluded to, nor would there be any advantage accruing from such an attempt; it is amply sufficient for my purpose, if I have established the fact that for the conduct of such expeditions we should have to secure the co-operation of all our available resources in the East.

The first step to this has I may say been quite recently taken, as announced by the Prime Minister in his speech at Manchester on the 12th of January 1904, where, in referring to the Committee on Imperial defence, he said—

"The Minister for War for Canada came over to this country to discuss with the Colonial Office and War Office, principally the War

Office, certain important questions connected with the development of the Canadian Militia. " * * * * * " As soon as I got information that this distinguished Minister was coming over from Canada to discuss these questions with the department, I immediately, with the consent of the Cabinet, asked if he would attend a meeting of the Defence Committee to discuss them not as a witness, not as a suppliant, but as a member ; and as a member the Canadian Minister for War joined in our deliberations." * * * * *

" I do not see why that which is applicable to Canada, applicable to Australia, should not be extended to India, and to every part of His Majesty's dominions."

This I urge is the germ of an idea, the fruit of which should make it possible in future for full and complete co-operation to take place between the different units which go to compose the British Empire.

But a Committee for Imperial Defence even when it is composed,

Necessity for establishment of local
military strategic centre.

as suggested by Mr. Balfour, of
members representative of the
different States of the Empire, while

it may settle large questions of Imperial military policy and bring together the views of the various States on such policy, is not the instrument best fitted for going into the details of organisation, etc., without which the skeleton of the policy still consists of dry bones, in place of being a living, breathing organism.

For this reason, and also because as I have already explained, the East is a separate sphere, liable to be temporarily cut off in time of war, it is necessary to inaugurate a local military strategical centre as well as a Naval one.

The position most suitable for the Naval one has been described

India's claims to be selected as local
military centre.

as Ceylon, and it now remains to
show that India is best fitted for
the purpose as regards Military

operations.

Her claims to hold this position may be summarised as under:—

- (1) She possesses the largest and most homogenous Military command in the East.
- (2) The existence of the Indian Head Quarter Staff, and Intelligence departments.
- (3) The presence of a large number of our most distinguished and proved Commanders in the field.
- (4) She possesses a great organised department of Supply and Transport, with unique experience of service in all the possible theatres of war in the East.
- (5) The existence of the only establishments we have in the East, for the manufacture of ammunition, and the material required for war.

In addition, however, to the necessities of securing the co-operation

Necessity for co-operation between
Naval and Military forces.

tion of the different Naval com-
mands in Eastern waters, by the
establishment of a Naval strategical

centre, and for the co-operation of the land forces of India, Australia and South Africa by similar methods, there yet remains the equally

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important task of securing co-operation between the naval and military forces; and the question arises how can this be reconciled with the establishment of separate naval and military strategic centres, the one situated in Ceylon and the other in India.

The answer I would give to this problem is, that Ceylon is geographically a dependent on India and that there appears to be a valid reason it should not be practically united and placed under the sway of the Indian Viceroy.

Combined Naval and Military centre in Ceylon advocated.
Political union of Ceylon and India proposed.

graphically a dependent on India and that there appears to be a valid reason it should not be practically united and placed under the

Under these circumstances, the military strategic centre of the East, under which term I now include both Naval and purely Military interests would lie in Ceylon, which as forming a portion of the Indian Empire, would be at once fortified in her position as a Naval centre as well as fitted for the location of the centre charged with the conduct of the purely Military interests connected with the Eastern sphere.

The mere nomination of a particular locality to be regarded as a strategic centre, would not by itself have any particular effect in procuring these results; it must be made an administrative centre, charged with the actual work of organizing and perpetuating that co-operation of forces for which we are striving.

And with this object in view, I would submit a proposal that a local Committee of Defence should be established, charged with the preparation of all details connected with the defence of our interests in the East, strictly subordinate to the Imperial Committee of Defence located in the heart of the Empire, and employed to supplement the labours of that body.

As to the constitution of this Committee, I would propose that the chief Naval Commander in Eastern waters should be the President, and that members should be provided by each of the three territories concerned to represent them, the member furnished by the Indian Empire being a distinguished General Officer specially selected for this particular purpose.

If the chief Naval Commander was for any reason unavailable the President should be the Commander-in-Chief in India, and a specially selected Admiral should replace the military member furnished by the Indian Empire, but this constitution would be decidedly inferior to that first suggested.

A Committee constituted as above, locally situated and duly authorized to correspond with the various Governments concerned, should be able to work out all the details of the forces, Naval and Military, which the different States would be prepared to furnish in case of war, and arrange the schemes of the operations in which they might be called on to partake.

The South African war has given us some idea of the resources in men and food-supplies, etc., which are lying latent in our various

self-governing colonies, but the hasty improvisation of forces which in that case, owing to want of previous organisation, had to be resorted to should serve as a warning for the future.

There are a thousand and one details which this Committee would have to deal with, the mere previous settlement of which would have the happiest effects in facilitating the creation and then the mobilisation of Colonial forces, but the bare statement of them would not serve any useful purpose, while a full discussion is quite out of the bounds of this Essay.

One particular instance may, however, be referred to as showing to a slight extent the nature of the labours which would devolve on such a body.

A previous settlement as regards the terms of service of Colonial troops, including the settlement of their pay when embodied, retaining fee in peace time and payment for actual work accomplished in regard to their training, would result not only in a saving of public money, but also in the avoidance of much misunderstanding and subsequent heart-burning ; it would also be a step towards getting a clear appreciation of the numbers and value of the troops who would be forthcoming, and thus permit an accurate estimate to be made of the enterprises which our resources should enable us to attempt with a fair prospect of success.

The association of the self-governing Colonies with the Empire in the defence of Imperial interests, Effect of co-operation of Eastern interests and resources on furthering the unity of the Empire. could not but have the happiest effect in contributing to that closer

union of the parts which go to make up the Empire of which we are all so proud. The realisation of a common destiny, and of common aims cannot but have its effect in welding the Empire together.

The Prime Minister in his speech at Manchester on the Imperial Defence Committee on the 12th January 1904, puts this point of view very clearly before his audience :—

" It will be for those who succeed me as Chairman of the Committee of Defence, to bring those germinating principles to their best result. I think that the Government, I think that the Party have reason to hope and some ground for believing, that if those who have to manage, and are responsible for this institution, are able to rise to the height of the opportunity which presents itself in the area which may be opened to us in the direction of closer union with every part of the Empire to which we belong, good results will follow."

" The thought of closer union with the Colonies has been dominating us through many months, has been the theme of eloquent speeches. It has, I venture to say, appealed to the highest and most unselfish instincts of our country. * * * Nevertheless, I believe even those who are most opposed to the fiscal union, for which I have so often expressed a desire—even those who cannot consent to the expedients for attaining it which have been suggested may see in this new development, something that will carry out an ideal common to every citizen of every part of the Empire, and which at all times may

be adopted without shocking the most antiquated prejudices of the most advanced Radical."

Measures required for strengthening the strategical situation in the East.

I have, in the previous pages drawn attention to the special value attaching to the possession of bases which enjoy the support of territories held under the same political tenure. I have also referred to the strategically advantageous situation of India, Australia and South Africa, affording each other mutual support, and dominating the Indian Ocean.

This situation is a naturally strong one, but it is well to grasp that in some respects it requires improvement.

In the first place, comes the question of the present state of dependence of each of these great communities on the home market for supplies and munitions of war.

India, it is true, has made some advance in the direction of being able to manufacture her own supply of small arm ammunition, khaki clothing, head covering, leather harness and accoutrements, but there still remain many articles, which she is obliged to obtain from England, while Australia and the Cape are practically dependent to a greater extent than India.

This is obviously not a satisfactory state of affairs from a military point of view: and all possible efforts should be made to improve our position in this respect.

In the old times, when the fleets were composed of wooden vessels, Bombay used to contribute to the output, and the question arises whether it is a possibility that in the future, the iron trade of India might be sufficiently developed to bring about a recurrence of this state of affairs, and whether the manufacture of some of the Artillery might not eventually be carried out in the country.

The advantages from an Imperial military point of view would be great—it would provide abundant opportunities for the employment of British capital, enterprise and organisation; and would possibly also result in lowering the cost of manufacture to the already heavily burdened tax-payer.

True, this might involve the question of competing with the home markets, of underselling them, with the products of cheap labour, but the efforts which would be necessary to develop their powers of manufacture to the extent of merely being able to produce their own requirements in war material, would be considerable, and it might be possible for the Government to make special stipulations when starting the necessary manufacturing works, curtailing the output to the provision of actual requirements, and prohibiting exports.

In any case, it is a matter of such importance in Imperial military policy, that even if this innovation was contrary to the

interests of home manufacturers, it might be a cause for regret, but could not override more important general interests.

It is worth noting, that there is a tendency in India to regard this question of "India's supplies" (including engineering plant, bridging material, etc., as well as military stores) from an Indian point of view, and that expression has been given to it, by an article in the "Times of India" of the 21st December 1903, also by correspondence which has been since then conducted in that newspaper in connection with it.

I will quote a short paragraph from a letter by "Manufacturer" which appears in the "Times of India" (weekly edition) of the 2nd January 1904, which will show this tendency:—

"India has a clear claim to supply the requirements of its Government, whenever its manufacturers can afford an equality to foreign products in qualities and price; and this should be the only stipulation made on the subject. To require anything more than this equality, is to penalise the Indian manufacturers and to favour the non-Indian producer to the discouragement of the country and the increase of its expenditure."

The general argument is equally applicable to South Africa and Australia and South Africa considered Australia, and if I have seemed to in relation to local independence in urge it mostly with regard to India, manufactories. it is because there are distinct movements in that country towards the establishment of local manufactories for the production of supplies, and I feel the importance of these attempts receiving due encouragement from the Government.

On the other hand, Australia and the Cape are more likely to receive a free hand, since they are not in the same dependent position politically as the Indian Empire, there is also in their case, less reason to expect that the question of cheap labour will come into consideration, on the whole, therefore, they are likely to develop manufacturing power in the course of time, as their own general development takes place.

There is another point in which we may improve the strategic situation in the East: I have referred to the suitability of Ceylon by railway suggested. Connection of Ceylon to South India as the strategic centre, and urged that its political union with the Indian Empire would afford it an access of strength, and render it still more fitted to fill this rôle. I would now suggest that in addition to this, it might be physically as well as politically united to India. The possibility of a railway being constructed to unite it with Southern India, has I understand been admitted, and if this is the case, the consequent position of Ceylon would be definitely assured.

Conclusion.

The principal lesson that has been borne in upon my inner consciousness, whilst employed in the task of examination of the Principal lessons learnt.

principles underlying the influence and application of sea power,

The East, a separate sphere. preliminary to the composition of this Essay, is that the East must not alone be regarded as a separate sphere of interests and control, but also as the offensive sphere *par excellence* moreover, that it is necessary to bear in mind the changes which have occurred

The East, the offensive sphere. during the march of time since France and Great Britain wrestled together at the commencement of the last century. Then, our interests in the East were little more than commencing, and no other European nation had consolidated territories to defend, consequently at that time sea power was the one and sufficient weapon of offence.

Since then, France has created Madagascar and Tonquin. Russia has thrown out her tentacles into the Pacific, Japan has become

Events which have brought this about. a nation, Germany has commenced to acquire possessions, nor can we be said to have been idle, the consequence is, that though Naval action is the basis on which offence and defence both depend, its power stops short at the coast lines of the various territories in which the interests of these Powers now lie, and the necessity arises for the employment of expeditionary forces, dependent indeed on sea power for their existence and support, but necessary in addition as being capable of extending its action into those regions it cannot reach of itself.

Not only may it be said that this necessity of employing expeditionary forces in the East has been practically created since the last great Naval war, but also that they have grown in many cases to the importance of serious campaigns, since they must be proportioned to the interests they may be called on to defend, and to the resistance they may have to face.

Finally, this increase in the magnitude of the operations which we may be called on to undertake can only be provided for by careful preparation and organisation of our forces in time of peace. If we effect this, we shall, when war breaks out be able to employ the whole of our resources, to the attainment of the results we are striving for, and we shall at any rate have done our best to deserve success.

TACTICAL SCHEME COMPETITION.

GENERAL IDEA.

The **RIVER KENNET** forms the frontier between two States, **NORTHLAND** and **SOUTHLAND**.

War between them is imminent.

Southern troops are assembling at **SALISBURY** and **SOUTH-AMPTON**, both 30 miles by road from **WESTCOTT**, whilst those of **NORTHLAND** are concentrating at **HENLEY**, 28 miles N. N. W., and at Marlow 25 miles N. of **WESTCOTT**.

The **KENNET** is unfordable below its junction with the stream E. of **EASTCOTT**, elsewhere it is fordable in places only with difficulty, the bottom is soft and full of holes, the other streams shown are everywhere fordable.

The country shown on the map is generally open, arable and pasture land, few fences, except in the immediate vicinity of the towns and villages. The forest is of large trees without undergrowth. **WELLINGTON WOOD** is very thick and is passable by Infantry in extended order only with difficulty.

The town of **WESTCOTT** is in **SOUTHLAND**.

At MARLOW at 8-30 A.M., on 1st October 1903, you receive the following confidential instructions from the Chief of the Staff of the NORTHLAND Army:—

Marlow 8 A.M., 1st October 1903.

To Lieutenant-Colonel A—

“1. War with **SOUTHLAND** will be declared to-day.

“2. According to latest information, concentration of **SOUTHLAND** forces is still proceeding at **SALISBURY** and **SOUTH-AMPTON**. Three Cavalry regiments arrived at **SALISBURY** yesterday, horses said to be in poor condition, but we have no information yet of any move northward from either of those places.

“3. It is the Commander-in-Chief's intention to move the army south to-morrow.

“4. Proceed as soon as possible with the troops as per margin, which have been already warned to receive orders from you, and secure and hold the crossings over the **KENNET** at **WESTCOTT** and **EASTCOTT** and in their vicinity. It is specially important to prevent any damage being done to the railway bridge over the **KENNET**. Secure any rolling-stock there is at **WESTCOTT**: send it north of the river.

2 Squadrons, X Dragoons.
4 Companies, 2nd Mounted Infantry.
X Battery, Horse Artillery.
1st Company, Sappers and Miners.
1st Battalion, 5th Regiment.
1 Section, 1st Cyclist Company (25 all ranks).

"5. You will proceed yourself with the mounted troops accompanied by any transport; (reserve ammunition on pack horses). Infantry and Sappers to follow with the 1st and 2nd line transport of your force. A Supply Officer and two Medical Officers will accompany you.

"6. The General Officer Commanding, HENLEY has been directed to send a Cavalry regiment to observe the KENNET in the direction of NEWBURY, and 2 Squadrons 17th Hussars have been ordered from UXBRIDGE to the line of the river E. of MILLEND (not inclusive): both have been directed to gain communication with you."

N. B.—The mounted troops of Lieutenant-Colonel A—— are camped within a mile of the south exit of MARLOW. Infantry and Sappers in billets in the town; all will be ready to start at a moment's notice.

Required.—A copy of the orders that Lieutenant-Colonel A—— issues for the movement from MARLOW, (country off the map may be assumed similar to that on the N. E. portion of the map).

On Lieutenant-Colonel A—— and his mounted troops reaching the riverline, it is found to be unoccupied, except by a few local Police and Customs officials. The only information obtained is that on September 30th, some SOUTHLAND officers arrived at WEST-COTT by train; after riding about the neighbourhood and making some enquiries in the town regarding supplies, they left again for the south the same evening.

Required.—(1) The measures taken by Lieutenant-Colonel A—— to carry out his instructions.

(2) His measures for protection during the night (disposition is black on the map).

During the evening and night of 1st and 2nd October the following reports are received by Lieutenant-Colonel A——

(1) Wire from Lieutenant-Colonel B—— "that Infantry and Sappers had arrived at X (5 miles north of LEYTON), and would continue their march at 5-30 A. M. on 2nd October (no time of departure noted)."

(2) Reports from patrols "Connection gained with 1st Division towards NEWBURY and with 17th Hussars towards GUILDFORD. No hostile troops met in either of these directions. All roads as clear as far as patrolled, except that on the SALISBURY road a SOUTHLAND patrol was met 3 miles south of RIDING and, after some enquiries, one prisoner taken of 6th Cuirassiers, but so severely wounded as to be unable to answer questions."

(3) Wire from Chief of Staff, dated Marlborough 9 P.M. 1st October that war had been declared, that it was reported in SALISBURY yesterday that the Cavalry there will to be 3 regiments) would move north to-day, that a considerable number of troops were expected to arrive there to-day. No news from SOUTHAMPTON and WINCHESTER. Remainder of 1st Division would, it was reported, start at 10 A.M. on 2nd October.

At 8-15 A. M., October 2nd, Lieutenant-Colonel A— receives the following:—

"SALISBURY—RIDING road, 5 miles south of **RIDING**, 6-45 A.M.
October 2nd, 1903.

"Followed hostile patrol last evening. Force, 2 regiments Cavalry (estimated) with guns bivouaced last night at P—, 9 miles south of RIDING. From commanding position here can see enemy has just commenced moving north.

" E. F., Lieutenant, 10th Dragoons."

Shortly afterwards further reports are received that at about the same time hostile mounted troops were advancing north on about the same line as the **SOUTHAMPTON** and **WINCHESTER** roads, about a regiment on each road.

Required.—An appreciation of the situation as it appears to Lieutenant-Colonel A—, and in detail the measures he takes to meet it.

Shew on the map in red the distribution of Lieutenant-Colonel A—'s force at 10-A. M., 2nd October.

Intending competitors should forward their names to the Secretary of the Institution together with the sum of Re. 1 not later than December 31st, 1904, when they will receive a copy of the map to which the Scheme relates, together with all instructions.

WEATHER AND WARFARE.

A LECTURE BY W. L. DALLAS, Esq.

The army is the only section of the community which is supposed to be indifferent to or superior to climatic influences. For years the soldiers' clothes were designed with the mere object of display and with no idea of protection : and to the present day, while the Civil population protects itself from the rain with macintoshes and from the sun with umbrellas, the soldier in uniform is compelled by custom to trust in the one case to the regulation great-coat and in the other to the regulation helmet.

But though individually the soldier may appear to ignore the weather, collectively he is as dependent on its vagaries as any other class of the community, and many well-laid schemes have been upset owing to ignorance of, or indifference to, meteorological conditions. Soldiers must necessarily be prepared, and, as a matter of fact, do march and fight in blazing heat or freezing cold, in snow or rain or in blinding dust, but the object of a careful commander in nearly all cases is to deploy his men on the field, at the moment of battle, in as fit a condition as possible, and this can only be accomplished by studying the questions of food, drink, clothing and marching in their relation to the climate of the region within which the operations are to be carried out. There are of course freaks or whims of the weather which cannot be foreseen ; incidents which appear to depend on the good luck, or the bad luck, which is popularly supposed to accompany particular commanders or nations at certain periods of their existence. I have some recollection of a certain battle in Italy between the French and the Austrians, during the progress of which a sudden storm and thick haze descended, completely hiding the contending forces and enabling the army which was having the worst of the encounter to retreat successfully to a more favourable position. This recollection I have been unable to verify, but it illustrates a class of weather phenomena with which it is *not* proposed to deal in this paper. Neither commander in this instance, could have foreseen or provided for such a contingency, and it was simply a case of a stroke of good luck being quickly utilized by the losing side. Leaving cases of this character out of the question, there are still innumerable examples of enterprises which have been wrecked, or been brought to a successful issue, owing to a preliminary study of climatic conditions.

The course of ancient and modern history is dotted with instances of the influence of the weather on military expeditions. There is the case with which we have all been intimate from our childhood of the Israelites crossing the Red Sea on dry ground, the waters of the sea having been driven back by a strong east wind all the previous night, and the subsequent overthrow of the Egyptians by the return of the waters of the sea when the east wind died down. In the year 700 (B.C.),

as is recorded by Isaiah, Sennacherib, King of Assyria, led his army through Palestine to attack Egypt. The Jews having fallen in with the invader, and the Assyrians passed on towards Egypt, at a time Sennacherib doubted the wisdom of leaving a fortified place like Jerusalem in his rear and turned back to destroy it. Of this Assyrian army nothing further was ever heard, and its destruction on the border between Palestine and Egypt, though at still unexplained times, is supposed to have been caused by the simoon. Similarly the failure of Alexander's failure to complete the conquest of India was due to the fact that his troops, which crossed the Indus above Attock in the spring of 327 (B.C.), were worn out by the heat of the Punjab, so that their spirit was broken by the hurricanes and rain of the south-west monsoon.

These incidents are, however, only valuable as showing the influence of climatic conditions on some of the most important enterprises of the past, as obviously we know too little about the expeditions individually, and too little of the intelligence resources possessed by the ancients, to say whether the recorded failures were due to want of knowledge, or to want of care.

In more recent times there are, however, well-authenticated examples of expeditions which have succeeded owing to a thorough study of the weather over the area in which the operations were undertaken, or have failed owing to the neglect of this study.

The defeat of the Spanish Armada, notwithstanding her size and daring of Drake and his lieutenants, was mainly due to the elements. The Armada was ready to start in 1587, but was delayed by Drake's sudden dash into Cadiz harbour, where he destroyed 100 ships and immense stores of provisions. Then the Admiral, Santa Cruz, an experienced sailor and commander, suddenly died, and Medina Sidonia was made Admiral in his place. The latter lacked the experience in maritime affairs, and in his appointment considered the weather were ignored. The fleet started in June, when such conditions might have been anticipated, but it had no sooner left than it was overtaken by a severe storm, many vessels were lost, and the fleet was compelled to put into Corunna for repairs. Still, when the Spanish decided to attempt the voyage back to Spain, the North Sea and the Pentland Firth, the weather was their most formidable enemy. Continuous gales accompanied the whole of its voyage, shattering and wrecking the vessels. Out of 120 ships and 27,000 men which left Spain in June, only 54 vessels and 9,000 men returned further to Seville. September 1588. Philip, when he heard of the failure of his Armada, exclaimed, "I have my ships against men and not against the elements," and this was correctly represented the system on which the Armada had been equipped, it showed that the possibly tempestuous elements of the elements had been ignored, and that the fleet was really ignorant of knowledge of the weather likely to be encountered.

One of the most remarkable, if rather hypothetical, instances of the overthrow of an army by the weather, is that of the Russian invasion of Russia. The Great Emperor entered Russia on the 22nd of June 1812, and advanced eastward to the city of Moscow.

On the 29th June a storm of great violence broke over the army, followed by five days of exceedingly heavy rain. The roads immediately became almost impassable. Napoleon had not calculated on this rainfall, and his supply of horses had been estimated on the basis of continued fine weather, so that, as soon as the roads became water-logged, a heavy wastage of horses occurred, and the mobility of the army from this time was seriously crippled. The results were so serious, as to thoroughly disorganize the vast train of supplies, and the practical failure of the expedition commenced from this date. In thus calculating on steady fine weather, Napoleon must have been misled, or have failed to make enquiries, as to the prevailing climatic conditions over the region between the Polish frontier and the Russian capital. The wettest period of the year in this locality is the end of June, the month of July, and the beginning of August, and the heavy rains experienced by Napoleon, though ascribed by him to bad luck, were in reality not exceptional and should not have been unexpected.

Napoleon reached Moscow early in September, and on the 15th the conflagrations commenced, which rendered the continued occupation of the town impracticable. Napoleon however delayed his retirement for five weeks and then complained of the Russian winter. On the 17th of October leather and linen were issued to the French troops, but it was then too late to make shoes or shirts, and there was no arrangement made to provide the soldiers with warm clothing or gloves, so that the army started on its retirement with the same clothing they wore half a year during their advance in the summer. The retreat commenced on the 18th October in beautiful weather, and on the 27th of November Napoleon announced, in his bulletin of that date, that the Russian army had been defeated for eight days longer, by which date the army was already in the snow-covered quarters. Oddly enough, Napoleon's bulletin of the 27th of November never having been recognized by the Russian army, the latter's retreat was never fulfilled, while the military position of the French army, which at the time the Moscow army had reached Napoleon's quarters, was already hopeless. The whole earth was covered with snow, and the weather was so cold that it became impossible to procure the food of the army. During November and December the troops struggled on the snow-covered roads, undergoing frightful miseries.

The meteorological records for the region traversed by the French army show that the climate is one of extremes. In the month of July the mean maximum temperature rises to 59 deg. F., and even on the 1st the minimum falls to - 43 deg. F., or 75 deg. of frost in January, when the mean monthly temperature of the region traversed by him is as follows:—

	deg.
July	59
August	54
September	51
October	41
November	21
December	14

The rivers in these regions freeze over about the 12th of November, and from about that date on until, for from three to four months, the lies on the ground. On the 3rd December 1812 the thermometer

principles underlying the influence and application of sea power.

The East, a separate sphere. This Essay is, that the East is not alone to be regarded as a separate sphere of interests and action, but also as the offensive sphere *par excellence*; moreover, that it is necessary to bear in mind the changes which have occurred during the march of time, since France and Great Britain were first together at the commencement of the last century. Then the interests in the East were little more than commercial, and no European nation had consolidated territories to defend, and consequently at that time sea power was the one and sufficient weapon of offence.

The East, the offensive sphere. Since then, France has created Madagascar and Indochina; Russia has thrown out her tentacles into the Pacific, Iran has become a nation, Germany has commenced to acquire possessions, and we be said to have been idle, the consequence is, that the East is now the basis on which offence and defence both are conducted. Sea power still stands at the command of the victors, but it is now the power which the interests of these Powers now lie, and the necessity for the employment of expeditionary forces, dependent on the sea power for their existence and support, but necessary in a measure as being capable of extending its action into those regions it cannot reach of itself.

Events which have brought this about. Not only may it be said that this necessity of employing expeditionary forces in the East has been created since the last century, but also that they have grown in many cases to the importance of serious campaigns, since they must be prosecuted in the interests they may be called on to defend, and to the reverses they may have to face.

Finally, this increase in the magnitude of the operations will necessitate for careful preparation and organisation in time of peace. We may be called on to undertake operations in time of peace, and we can only be prepared for them by the preparation and organisation of our forces in time of peace. We effect this, we shall, when war breaks out be able to rely on the words of our resources, to the attainment of the results we are striving for, and we shall at any rate have done our best to deserve success.

TACTICAL SCHEME COMPETITION.

GENERAL IDEA.

The **RIVER KENNET** forms the frontier between two States, **NORTHLAND** and **SOUTHLAND**.

War between them is imminent.

Southern troops are assembling at **SALISBURY** and **SOUTH-AMPTON**, both 30 miles by road from **WESTCOTT**, whilst those of **NORTHLAND** are concentrating at **HENLEY**, 28 miles N. N. W., and at Marlow 25 miles N. of **WESTCOTT**.

The **KENNET** is unfordable below its junction with the stream E. of **EASTCOTT**, elsewhere it is fordable in places only with difficulty, the bottom is soft and full of holes, the other streams shown are everywhere fordable.

The country shown on the map is generally open, arable and pasture land, few fences, except in the immediate vicinity of the towns and villages. The forest is of large trees without undergrowth. **WELLINGTON WOOD** is very thick and is passable by Infantry in extended order only with difficulty.

The town of **WESTCOTT** is in **SOUTHLAND**.

At MARLOW at 8-30 A.M., on 1st October 1903, you receive the following confidential instructions from the Chief of the Staff of the NORTHLAND Army:—

Marlow 8 A.M., 1st October 1903.

To Lieutenant-Colonel A—

"1. War with **SOUTHLAND** will be declared to-day.

"2. According to latest information, concentration of **SOUTHLAND** forces is still proceeding at **SALISBURY** and **SOUTH-AMPTON**. Three Cavalry regiments arrived at **SALISBURY** yesterday, horses said to be in poor condition, but we have no information yet of any move northward from either of those places.

"3. It is the Commander-in-Chief's intention to move the army south to-morrow.

"4. Proceed as soon as possible with the troops as per margin, which have been already warned to receive orders from you, and secure and hold the crossings over the **KENNET** at **WESTCOTT** and **EASTCOTT** and in their vicinity. It is specially important to prevent any damage being done to the railway bridge over the **KENNET**. Secure any rolling-stock there is at **WESTCOTT**: send it north of the river.

2 Squadrons, X Dragoons.	
4 Companies, 2nd Mounted Infantry.	
X Battery, Horse Artillery.	
1st Company, Sappers and Miners.	
1st Battalion, 5th Regiment.	
1 Section, 1st Cyclist Company (25 all ranks).	

"5. You will proceed yourself with the mounted troops unaccompanied by any transport; (reserve ammunition on pack horses), Infantry and Sappers to follow with the 1st and 2nd line transport of your force. A Supply Officer and two Medical Officers will accompany you.

"6. The General Officer Commanding, **HENLEY**, has been directed to send a Cavalry regiment to observe the **KENNET** in the direction of **NEWBURY**, and 2 Squadrons 17th Hussars have been ordered from **UXBRIDGE** to the line of the river E. of **MILLEND** (not inclusive): both have been directed to gain communication with you."

N. B.—The mounted troops of Lieutenant-Colonel A——'s force are camped within a mile of the south exit of **MARLOW**, Infantry and Sappers in billets in the town; all will be ready to start at 10 A.M.

Required.—A copy of the orders that Lieutenant-Colonel A—— issues for the movement from **MARLOW**, (country off the map may be assumed similar to that on the N. E. portion of the map).

On Lieutenant-Colonel A——and his mounted troops reaching the riverline, it is found to be unoccupied, except by a few Frontier Police and Customs officials. The only information obtained is that on September 30th, some **SOUTHLAND** officers arrived at **WEST-COTT** by train; after riding about the neighbourhood and making some enquiries in the town regarding supplies, they left again for the south the same evening.

Required.—(1) The measures taken by Lieutenant-Colonel A—— to carry out his instructions.

(2) His measures for protection during the night (dispositions in black on the map).

During the evening and night of 1st and 2nd October the following reports are received by Lieutenant-Colonel A——:

(1) Wire from Lieutenant-Colonel B—— "that Infantry and Sappers had arrived at **X** (5 miles north of **LEYTON**), and would continue their march at 5.30 A. M. on 2nd October (no time of despatch noted)."

(2) Reports from patrols "Connection gained with 1st Lancers towards **NEWBURY** and with 17th Hussars towards **GUILDFORD**. No hostile troops met in either of these directions. All roads to south clear as far as patrolled, except that on the **SALISBURY** road a small **SOUTHLAND** patrol was met 3 miles south of **RIDING** and driven south, one prisoner taken of 6th Cuirassiers, but so severely wounded as to be unable to answer questions."

(3) Wire from Chief of Staff, dated Marlow 9 P.M., 1st October, that war had been declared: that it was reported in **SALISBURY** yesterday that the Cavalry there (said to be 3 regiments) would move north to-day, that a considerable number of troops were expected to arrive there to-day. No news from **SOUTHAMPTON** and **WINCHESTER**. Remainder of 10th Dragoons would join Lieutenant-Colonel A—— by 10 A.M. on 2nd October.

At 8-15 A. M., October 2nd, Lieutenant-Colonel A— receives the following :—

"SALISBURY—RIDING road, 5 miles south of **RIDING**, 6-45 A.M.
October 2nd, 1903.

"Followed hostile patrol last evening. Force, 2 regiments Cavalry (estimated) with guns bivouaced last night at P—, 9 miles south of **RIDING**. From commanding position here can see enemy has just commenced moving north.

" E. F., Lieutenant, 10th Dragoons."

Shortly afterwards further reports are received that at about the same time hostile mounted troops were advancing north on about the same line as the **SOUTHAMPTON** and **WINCHESTER** roads, about a regiment on each road.

Required.—An appreciation of the situation as it appears to Lieutenant-Colonel A—, and in detail the measures he takes to meet it.

Shew on the map in red the distribution of Lieutenant-Colonel A—'s force at 10-A. M., 2nd October.

Intending competitors should forward their names to the Secretary of the Institution together with the sum of Re. 1 not later than December 31st, 1904, when they will receive a copy of the map to which the Scheme relates, together with all instructions.

WEATHER AND WARFARE.

A LECTURE BY W. L. DALLAS, ESQ.

The army is the only section of the community which is supposed to be indifferent to or superior to climatic influences. For years the soldiers' clothes were designed with the mere object of display and with no idea of protection ; and to the present day, while the Civil population protects itself from the rain with macintoshes and from the sun with umbrellas, the soldier in uniform is compelled by custom to trust in the one case to the regulation great-coat and in the other to the regulation helmet.

But though individually the soldier may appear to ignore the weather, collectively he is as dependent on its vagaries as any other class of the community, and many well-laid schemes have been upset owing to ignorance of, or indifference to, meteorological conditions. Soldiers must necessarily be prepared, and, as a matter of fact, do march and fight in blazing heat or freezing cold, in snow or rain or in blinding dust, but the object of a careful commander in nearly all cases is to deploy his men on the field, at the moment of battle, in as fit a condition as possible, and this can only be accomplished by studying the questions of food, drink, clothing and marching in their relation to the climate of the region within which the operations are to be carried out. There are of course freaks or whims of the weather which cannot be foreseen ; incidents which appear to depend on the good luck, or the bad luck, which is popularly supposed to accompany particular commanders or nations at certain periods of their existence. I have some recollection of a certain battle in Italy between the French and the Austrians, during the progress of which a sudden storm and thick haze descended, completely hiding the contending forces and enabling the army which was having the worst of the encounter to retreat successfully to a more favourable position. This recollection I have been unable to verify, but it illustrates a class of weather phenomena with which it is *not* proposed to deal in this paper. Neither commander in this instance, could have foreseen or provided for such a contingency, and it was simply a case of a stroke of good luck being quickly utilized by the losing side. Leaving cases of this character out of the question, there are still innumerable examples of enterprises which have been wrecked, or been brought to a successful issue, owing to a preliminary study of climatic conditions.

The course of ancient and modern history is dotted with instances of the influence of the weather on military expeditions. There is the case with which we have all been intimate from our childhood of the Israelites crossing the Red Sea on dry ground, the waters of the sea having been driven back by a strong east wind all the previous night, and the subsequent overthrow of the Egyptians by the return of the waters of the sea when the east wind died down. In the year 700 (B.C.),

as is recorded by Isaiah, Sennacherib, King of Assyria, marched a great army through Palestine to attack Egypt. The Jews hastily made peace with the invader, and the Assyrians passed on towards Egypt; but after a time Sennacherib doubted the wisdom of leaving a fortified town like Jerusalem in his rear and turned back to destroy it. Of this great army nothing further was ever heard, and its destruction on the frontier between Palestine and Egypt, though a still unexplained catastrophe, is supposed to have been caused by the simoon. Similarly the Great Alexander's failure to complete the conquest of India was due to the fact that his troops, which crossed the Indus above Attock in the spring of 327 (B.C.), were worn out by the heat of the Punjab summer, and their spirit was broken by the hurricanes and rain of the subsequent south-west monsoon.

These incidents are, however, only valuable as showing the actual influence of climatic conditions on some of the most important military enterprises of the past, as obviously we know too little about the expeditions individually, and too little of the "intelligence branches" possessed by the ancients, to say whether the recorded failures were due to want of knowledge, or to want of care.

In more recent times there are, however, well-authenticated examples of expeditions which have succeeded owing to anticipatory study of the weather over the area in which the operations were to be undertaken, or have failed owing to the neglect of this study.

The defeat of the Spanish Armada, notwithstanding all the ability and daring of Drake and his lieutenants, was mainly due to the elements. The Armada was ready to start in 1587, but was delayed by Drake's sudden dash into Cadiz harbour, where he destroyed nearly 100 ships and immense stores of provisions. Then the Admiral, Santa Cruz, an experienced sailor and commander, suddenly died, and Medina Sidonia was made Admiral in his place. The latter had had no experience in maritime affairs, and in his appointment considerations of the weather were ignored. The fleet started in June, when settled conditions might have been anticipated, but it had no sooner left Lisbon than it was overtaken by a severe storm, many vessels were shattered and the fleet was compelled to put into Coruna for repairs. Subsequently, when the Spaniards decided to attempt the voyage back to Spain by the North Sea and the Pentland Firth, the weather again proved a most formidable enemy. Continuous gales accompanied the fleet on its voyage, shattering and wrecking the vessels. Out of 129 large ships and 27,000 men which left Spain in June, only 54 broken-down vessels and 9,000 men returned in the following September and October. Philip, when he heard of the failure of his Armada, exclaimed—"I sent my ships against men and not against the billows!" and if this remark correctly represented the system on which the Armada had been equipped, it showed that the possibly tempestuous character of the elements had been ignored, and that the defeat was partly due to a want of knowledge of the weather likely to be encountered.

One of the most remarkable, if rather hackneyed instance of the overthrow of an army by the weather, is that afforded by Napoleon's invasion of Russia. The Great Emperor entered Russia on the 25th of June 1812, and advanced east-north-eastward towards Smolensk.

On the 29th June a storm of great violence broke over the army, followed by five days of exceedingly heavy rain. The roads immediately became almost impassable. Napoleon had not calculated on this rainfall, and his supply of horses had been estimated on the basis of continued fine weather, so that, as soon as the roads became water-logged, a heavy wastage of horses occurred, and the mobility of the army from this time was seriously crippled. The results were so serious, as to thoroughly disorganize the vast train of supplies, and the practical failure of the expedition commenced from this date. In thus calculating on steady fine weather, Napoleon must have been misled, or have failed to make enquiries, as to the prevailing climatic conditions over the region between the Polish frontier and the Russian capital. The wettest period of the year in this locality is the end of June, the month of July, and the beginning of August, and the heavy rains experienced by Napoleon, though ascribed by him to bad luck, were in reality not exceptional and should not have been unexpected.

Napoleon reached Moscow early in September, and on the 15th the conflagrations commenced, which rendered the continued occupation of the town impracticable. Napoleon however delayed his retirement for five weeks and then complained of the Russian winter. On the 17th of October leather and linen were issued to the French troops, but it was then too late to make shoes or shirts, and there was no attempt made to provide the soldiers with warm clothing or gloves, so that the army started on its retirement with the same clothing the men had worn during their advance in the summer. The retreat commenced on the 18th October in beautiful weather, and on the 27th of October Napoleon announced, in his bulletin of that date, that fine weather would continue for eight days longer, by which date the army would be in their new quarters. Oddly enough, Napoleon's reputation as a weather prophet never having been recognized, the meteorological portion of the forecast was fulfilled, while the military portion failed completely. Not a man of the Moscow army had reached Smolensk when the winter began in earnest. The whole earth was covered with a white pall, and immediately it became impossible to procure the scantiest food. During November and December the troops struggled on towards the frontier, undergoing frightful miseries.

The meteorological records for the region traversed by the French army show that the climate is one of extremes. At Moscow itself the mean maximum temperature rises to 99 deg. F. in August, and the mean minimum falls to - 43 deg. F. or 75 deg. of frost in January, while the mean monthly temperature of the region traversed by him is as follows :—

						deg.
July	...	...	...	...	...	66 F.
August	...	...	...	...	...	64 F.
September	...	...	...	...	...	53 F.
October	...	...	...	...	...	41 F.
November	...	...	...	...	...	26 F.
December	...	...	...	...	...	17 F.

The rivers in these regions freeze over about the 12th of November, and from about that date onward, for from three to five months, snow lies on the ground. On the 3rd December 1812 the thermometer is

reported to have fallen to about 35 deg. F. below zero and never rose above zero, so that the consequent destruction of life was frightfully rapid.

The number of troops which entered Russia was 630,058, and of these only about 60,000 returned. Historians say that Napoleon was beaten before the first snowflake fell. This is no doubt true as regards the success of his expedition, but the greater part of the army might, had the winter been properly anticipated, have returned and wintered at Wilna. His overwhelming disasters, which deprived him permanently of half a million of soldiers, arose from ignoring the approach of winter, and by this he lost scores of thousands of men unnecessarily.

Another, but less striking instance of a military calamity resulting from neglect of the weather, is afforded by our own carelessness and ignorance during the course of the Crimean campaign. The entire stock of food, corn and hay provided by the commissariat for a couple of months for the English army was stowed away in sailing vessels which were ordered to lie outside Balaclava harbour, though it was known that they had to ride at anchor on a rocky bottom with a terrible coast all around the Bay; and these instructions were given although it was notorious that the place was subject in the autumn to violent storms of wind. A hurricane arose on the night of the 14th-15th November 1854, and the whole of these ships were lost with all the food and clothing of the soldiers, and provender for the horses. Lord Wolseley in his "story" mentions that even when he arrived, a month later, "the whole coast on each side of the entrance was a mass of wreckage—the result of the great and disastrous storm of the 15th." Largely as a result of this storm, or rather as a result of carelessness and ignorance regarding the possible weather, Lord Wolseley says that the soldiers, "during that winter (1854-55), often lived on offal and garbage," and our overstarved and overworked troops were rather in the position of the besieged than of the besiegers.

As regards this storm, it was subsequently evident from a mere cursory study, especially of its rate and direction of movement, that timely notice of its approach might have been issued to the French and English commanders and the immense damage to the allied fleets and transports might have been mitigated, if not altogether avoided.

If this was too much to expect in these early days of telegraphy and meteorology, it may be mentioned that Dr. Russell, the celebrated *Times* war correspondent, states that a warning of what might happen was given on Friday, November 10th, 1854, when a similar, but slighter gale was experienced. The wind on that occasion set right into the Bay and raised a high sea which was only ridden out by the vessels at anchor, owing to the fact that they were not sailing vessels, but were able to steam ahead against wind and sea. This particular gale soon moderated and wind and sea went down, but the warning was disregarded and the luckless sailing transports, which subsequently arrived, were ordered or allowed to remain outside until the hurricane of the 14th-15th rushed down on them, carried them in and wrecked them on the rock-bound coast.

The preceding accounts have been quoted to show how a crushing disaster and a very serious loss were brought about by ignoring the

Importance of the weather on military expeditions, and in the following paragraphs an attempt is made to give a rough indication of the climatic conditions which prevail in the countries around our Indian Empire, and the general weather which our troops would have to face in the event of their operating beyond the frontier.

For Thibet there will probably be better climatic information available at the close of the present expedition than has hitherto been the case. The Mission has necessitated the continued exposure of a comparatively considerable number of men, unaccustomed to intense cold or to high elevations, to life at altitudes ranging between 10,000 and 15,700 feet. The lowest temperature experienced during last winter was -26 deg. F. or 58 deg. of frost at Chaggia on the Tang-la. Chaggia was, however, only an encampment, but at Tuna and Phari a large portion of the Mission was collected, and there night temperatures of -17 deg. F. or -15 deg. F., equal to 47 deg. to 49 deg. of frost, were repeatedly reached. The normal night or minimum temperature during January and February is probably, in this part of the world, about -10 deg. F. for 15,000 feet of elevation, rising to 7 deg. F. or 25 deg. of frost for 10,000 feet. In addition to this intense cold, the weather has been very stormy; and so far as I have been able to judge from the scanty records available, the various snow-storms and gales which were experienced during the past winter over Further Kashmir have rolled along the Himalayas, and a few days after their occurrence in the north-west have given blizzards and snow-storms to the north-east. What has been the wastage of men and animals under these conditions will be known when the records of the expedition are written. Cold in itself is not very trying to healthy men, and that mankind, unused to intense cold, can yet survive and keep healthy under very trying conditions of temperature, is proved by the records of Arctic and Ant-Arctic expeditions; thus the explorers on the *Discovery* in May 1903, experienced a temperature of 100 deg. of frost or -68 deg. F., and Nansen recorded a temperature of -57 deg. F. or 89 deg. of frost. These readings are infinitely lower than anything experienced in Thibet, but the explorers, &c., were heavily clad and were sheltered in a warm ship, while the men of the Thibet Mission were frequently out in the open with the scantiest of shelters.

Apparently also the cold and elevation have in an indirect manner affected the troops injuriously. Imperfectly cooked food has caused indigestion among the soldiers, congealed oil has led to difficulties with the magazines of the rifles, and low temperatures have affected the springs of the Maxims. The boiling point of water is reduced 1 deg. for every 548 feet of elevation, so that, as a simple division sum will show, at 15,000 feet water will boil at 185 deg. which is too low a temperature to properly cook many kinds of food. Certain oils begin to congeal at 0 deg. F. and become thick even at higher temperatures, so that either kerosine or glycerine is the only proper lubricant for the locks of rifles and Maxims at these temperatures. A correspondent of the *Times* waxed wrathful about these faults of commission and omission and want of knowledge, and remarked that "any tyro in Physical Science could have told the Military authorities that at 15,000 feet above the sea, oil ceases to be a lubricant and becomes a clog, and that the temperature of water boiling in an open vessel, falls roughly 2 deg. F. per every 1,000

feet of ascent". Whether there was any truth in these accusations, or whether these difficulties were experienced, I do not know; but a certain amount of knowledge as to the weather and temperatures of Thibet was undoubtedly available. The temperatures which were known to prevail in Thibet are stated in Colonel Bower's diary. Colonel Bower entered Thibet by the Lanak Pass in July 1891, and throughout his journey, which for months was at an elevation of between 15,000 and 17,000 feet, read his thermometer daily at day-break. During July the temperatures at that hour were between 18 deg. and 28 deg. *i.e.*, there was from 14 deg. to 4 deg. of frost; during August the actual temperatures recorded ranged between 19 deg. and 30 deg. F.; during September, between 19 deg. and 29 deg. F.; during October, between 21 deg. and -15 deg. F.; and during November, between 2 deg. and -15 deg. F. There was thus uninterrupted frost at day-break throughout these five months, and in October and November the thermometer fell to 47 deg. below freezing point. Snow fell frequently even in July and August, and from September onward was of daily occurrence, while heavy rain constantly occurred and the country was cut up by deep water-courses.

"Throughout the whole journey Colonel Bower experienced a strong west-south-west wind, which was very trying. He was camped at a place called Gagalinchin in Lat. 31 deg. 30' and Long. 89 deg. 15' and about 120 miles north-west of Lhasa from the 8th to the 30th September at an elevation of 15,560 feet, and during that time his highest temperature at night was 36 deg. and his lowest 19 deg. F. During this long halt Colonel Bower says the weather was abominable; snow off and on all day and night. What fell in the day time melted at once, but what fell at night lay till the sun rose, and then quickly disappeared."

It is difficult to understand how in face of these statements the belief arose that the climate of Thibet was rainless. A correspondent with the Thibet Mission refers to this belief in the columns of the *Pioneer*. He says: "We all knew the country was bleak and desolate; we also all thought we knew that it was rainless. What our authority was I do not know, but the impression was almost universal." Bower's diary was published in 1893—more than ten years ago,—and almost every day there appear such remarks as 'heavy rain all night,' 'sleeting hard,' 'very heavy rain,' etc., so that there appears to be very little justification for this almost universal impression."

To the west of Thibet there is the region including Further Kashmir, the Pamirs and the Hindu Kush, the subject of Sir Walter Lawrence's ponderous *joke*. This region is a land of high mountains and deep valleys. Between October and May the cold on the higher elevations is intense, and both on the hills and in the valleys severe snow-storms with very strong cold winds prevail from January to May. In June, July and August extraordinarily strong westerly winds, carrying much dust, prevail all day, but at night the air is practically calm. During these three months the heat is very great in the valleys, the temperature rising to 95 deg. every afternoon. This temperature, the high wind and the dust, would render the movement of troops during the day very difficult. Mr. Crosby, who passed over the roof of the world in the

summer of 1903, speaks of the fierce winds blowing regularly from south-west and constituting one of the most serious hardships of travel in this part of the world. Crosby discusses the routes southward through this region. First to the west is the Gilgit route. It is short, but not sweet. Caravans attempting that road are unloaded, the goods being carried over considerable distances by coolies. This is sufficient to class this road as impracticable for large movements. The Karakoram route is equally bad. The mortality among horses is frightful, and the number of their skeletons is almost past belief. Horses begin to die at 15,500 feet, and this is the ill fortune which overshadows all travel in this fatal region. The rare atmosphere, with the extreme nocturnal temperatures, kills horses even before they begin to suffer from starvation. This puts this route out of consideration for the movement of large bodies of men.

During September the weather is fine, bright and quiet. Frost commences at the close of the month, and October, November and December are generally dull, cloudy and cheerless months. In January, as mentioned above, snow begins to fall heavily and storm after storm passes over the region.

The following are data for this area :—

GILGIT.

Elevation 4,890 feet.

Month.	TEMPERATURE.				RAINFALL.
	Mean.	Mean maximum.	Mean minimum.	Mean daily range.	Inches.
January ...	38.4	45.2	31.6	13.6	0.21
February ...	44.0	51.3	36.6	14.7	0.16
March ...	53.5	61.7	45.3	16.4	0.59
April ...	63.4	72.7	54.0	18.7	1.15
May ...	73.6	85.4	61.8	23.6	0.57
June ...	82.3	94.6	70.0	24.6	0.35
July ...	85.0	96.6	73.3	23.3	0.84
August ...	83.2	94.2	72.1	22.1	0.34
September ...	75.6	86.7	64.5	22.2	0.25
October ...	63.5	73.9	53.1	20.8	0.20
November ...	52.4	62.0	42.8	19.2	0.05
December ...	41.9	49.2	34.5	14.7	0.09
Year ...	63.1	.....	.....	.....	4.80

Mean highest temperature of year ...	...	...	98.4
Mean lowest temperature of year ...	...	...	31.2
Mean annual range of temperature ...	...	...	67.2
Highest recorded reading (11 years) ...	...	...	113.2 (1893).
Lowest recorded reading (10 years) ...	...	...	21.9 (1902).
Absolute range of temperature ...	...	...	91.3
Rainfall of wettest year (11 years) ...	...	...	6.18 inches (1894).
Rainfall of driest year (11 years) ...	...	...	2.12 inches (1892).

LEH.

Elevation 11,503 feet.

Month.	TEMPERATURE.				RAINFALL.
	Mean.	Mean maximum.	Mean minimum.	Mean daily range.	Inches.
January ...	19.3	23.8	8.8	21.0	0.31
February ...	20.6	31.4	9.8	21.6	0.35
March ...	32.1	43.1	21.1	22.0	0.22
April ...	44.0	57.1	30.9	26.2	0.16
May ...	50.4	64.0	35.8	27.2	0.22
June ...	58.9	73.1	44.6	28.5	0.17
July ...	64.4	78.2	50.6	27.6	0.40
August ...	63.6	77.4	49.8	27.6	0.54
September ...	55.9	70.3	41.5	28.8	0.20
October ...	44.3	58.6	29.9	28.7	0.22
November ...	34.1	47.6	20.5	27.1	0.02
December ...	24.0	34.7	13.2	21.5	0.19
Year ...	42.6	.....	.....	.....	3.00

Mean highest temperature of year ...	79.4
Mean lowest temperature of year ...	7.4
Mean annual range of temperature ...	72.0
Highest recorded reading (28 years) ...	93.0 (1876).
Lowest recorded reading (28 years) ...	—19.0 (1899).
Absolute range of temperature ...	112.0
Rainfall of wettest year (25 years) ...	9.10 inches (1894).
Rainfall of driest year (25 years) ...	0.44 inches (1876).

To the south-west of the Pamirs lies Afghanistan, a country which may at any time become the objective of our troops. The only observatory in the country is at Kabul, and the meteorological records for this station are as follows :—

KABUL.

Elevation not known.

Month.	TEMPERATURE.				RAINFALL.
	Mean.	Mean maximum.	Mean minimum.	Mean daily range.	Inches.
January ...	31.4	45.0	17.8	27.2	1.24
February ...	35.9	48.5	23.3	25.2	0.98
March ...	46.4	57.1	35.6	21.5	4.90
April ...	58.3	71.4	45.1	26.3	2.24
May ...	67.9	82.6	53.2	29.4	0.54
June ...	74.0	89.3	58.6	30.7	0.21
July ...	77.0	92.4	61.6	30.8	0.20
August ...	76.0	92.4	59.5	32.9	0.18
September ...	69.2	87.3	51.0	36.3	0.03
October ...	58.3	75.2	41.4	33.8	0.32
November ...	51.3	67.6	34.9	32.7	0.72
December ...	41.3	54.9	27.7	27.2	0.29
Year ...	57.3	.....	.....	.....	11.85

Mean highest temperature of year ...	93.8
Mean lowest temperature of year ...	16.6
Mean annual range of temperature ...	77.2
Highest recorded reading (10 years) ...	112.1 (1896).
Lowest recorded reading (9 years) ...	—0.2 (1897).
Absolute range of temperature ...	112.3

The preceding data show that the day temperature rises to over 90 deg. during the months of June, July, August and September, and falls at night to considerably below freezing point from the middle of November to the beginning of March. The highest temperature hitherto recorded has been *112 deg.* in 1896 and the lowest minimum, $-0\cdot2$ deg. in 1897. There is very little rain between May and November, not much in December, January and February, but a good deal in March and April. Snow ordinarily commences at the end of December and continues during January and February. It is not heavy in Kabul, but falls thickly on the surrounding hills. Altogether the climate of Kabul is by no means bad. The summer is warm, but not to be compared with an Indian summer, while the winter though cold and frosty is ordinarily bright and bracing.

For Northern Afghanistan the only meteorological records available are those registered by the Afghan Boundary Commission.

In this region there are, as in the Temperate Zone, the usual four seasons of the year. During the winter, which lasts from December to March, heavy snow-storms occur. The temperature during this season is very changeable and the climate very trying. The thermometer frequently falls to a very low point, more especially during January and the first half of February when, on some days, the thermometer does not rise above 21 deg. F. all day, and occasionally falls at night to 12 deg. below zero F. At this season the Hari Rud, which flows past Herat, is frozen solid, rapids and all, and forms the highway for the few people who are travelling about.

Spring lasts during April and May and the weather is showery, fresh and bright, like spring in Europe. Occasionally, however, severe storms are experienced. One of these was encountered by the Commission on the 4th of April 1885. It came on just after what is known as the Penjdel incident when the Commission was retiring quickly. No one thought of examining the barometer or watching the signs of change in the wind and sky. The retirement was ordered without regard to the weather; the consequence was that the Mission encountered the storm in the open and unprepared, and that numerous men and animals and much baggage were lost. Colonel Yate, describing this retirement, says: "When the party reached the mouth of the Au-Safid Pass they found a swollen running stream with a bed of soft mud into which horses, mules and ponies sank deep. The water was bitterly cold and the wind piercing. When the top of the Pass was reached the wind, irrespective of its bitterness and the snow and sleet which accompanied it, was so powerful that it actually blew General Lumsden and his horse off the path and down a steep bank. The Mission camped at Chashma-i-sabz, and in the morning three men were found dead and many others frost bitten. Nine dead bodies were brought in later, and altogether 24 persons died from exposure and cold." That the advance of this storm could have been foreseen is evident from the warnings which it gave before entering Baluchistan and North-West India. Had this storm encountered a large army on the march with all its impedimenta, instead of a small escort of 500 men, the loss of life, &c., would have been immense.

About the middle of May hot westerly winds set in and continue till the end of September. These winds commence about 10 A. M. daily

and last till about 5 or 6 P. M., and during these months the temperature in the afternoon rises in open tents to about 109 deg. or 110 deg. The wind raises a thick dust, and occasionally, when there has been rain on the hills, blows with the force of a severe gale. Thunder-storms occasionally occur during these months, and in July 1874 it is reported that a snow-storm occurred when snow fell for seven hours, and the snow lay 3 feet deep in the evening. The autumn is generally fine, but the weather steadily grows colder and colder, and in November and December is cloudy, chilly and disagreeable.

The following gives the mean data for this portion of Afghanistan:—

NORTHERN AFGHANISTAN.

Month.	TEMPERATURE.			
	Mean.	Mean maximum.	Mean minimum.	Mean daily range.
January	35.1	42.1	28.0	14.1
February	32.8	42.5	23.0	19.5
March	48.5	60.5	36.4	24.1
April	56.5	68.6	44.3	24.3
May	68.6	84.5	52.7	31.8
June	81.4	99.0	63.8	35.2
July	80.3	98.2	62.4	35.8
August	83.1	86.1	59.8	35.4
September	68.0	100.8	65.4	
October	58.0	84.5	51.4	33.1
November	50.0	75.6	40.4	35.2
December	39.1	65.4	34.5	30.9
Year	58.5	60.7	27.5	23.2
Mean highest temperature of year 99.0				
Mean lowest temperature of year 17.0				
Mean annual range of temperature 82.0				
Highest recorded reading (2 years) 116.7 (1886).				
Lowest recorded reading (2 years) —12 (1886).				
Absolute range of temperature 122.7				

Another possible objective of a British expedition is the Persian Gulf. The Gulf climate has enjoyed an unenviable reputation from the earliest times. The worst portion of the Gulf is the neighbourhood of Bunder Abbas. At Lingah it only rains during a period of two or three weeks in the year, and in this locality there is no amelioration derivable from sea breezes, as the highest sea temperature recorded throughout the world is registered along this coast, where in July and August the temperature of the sea water stands steadily at 94 deg. Of Bunder Abbas, or Gamberoon, as it was then known, Fitch, an Elizabethan merchant, writes (1583): "The air seems on fire;" while Herbert says "the air here is so insufferable; some use to lie naked in troughs filled with water which nevertheless parboils their flesh." The British sailors of that period said that "there is but an inch deal between

Gamberoon and hell," and originated an expression which has since been applied to other places on the earth's surface.

These early travellers and writers were, however, rather inclined to let their imaginations run riot when describing the places they had visited and the sufferings they had undergone. As an instance, it may be mentioned that a certain Abdur Razak (May 1442), writing of Muscat on the opposite side of the Gulf, says "the heat (at Muscat) is so intense that it burned the marrow in the bones, the sword in the scabbard melted like wax and the gems which adorned the hilt were reduced to coal. In the plains the chase became a matter of perfect ease, for the desert was filled with roasted Gazelles." Muscat, though not an altogether desirable place of residence, is yet distinctly libelled in this description. As a matter of fact, the Gulf climate is moderately agreeable in the winter months, though in the summer it is most trying. Under awnings on the deck of a steamer the thermometer rises to 120 deg. F., while this intense heat is aggravated by the high humidity. There are no instrumental records for the Bunder Abbas region, but the following gives data for Bushire further up the Gulf;—

BUSHIRE,

Elevation 14 feet.

Month.	TEMPERATURE.				RAINFALL.	
	Mean.	Mean maximum.	Mean minimum.	Mean daily range.	Inches.	Days.
January ...	57.9	64.1	51.7	12.4	3.12	21
February ...	59.3	66.7	52.8	12.9	2.35	8
March ...	65.6	72.3	58.8	13.5	1.00	0
April ...	74.2	81.6	66.7	14.9	0.53	0
May ...	82.2	89.1	75.3	13.8	0	0
June ...	86.2	91.9	80.5	11.4	0	0
July ...	89.8	95.3	84.3	11.0	0	0
August ...	90.5	97.0	84.0	13.0	0	0
September ...	86.7	94.3	79.1	15.2	0	0
October ...	79.5	87.8	71.2	16.6	0.08	0
November ...	70.2	78.1	62.3	15.8	1.79	3
December ...	62.3	69.2	55.4	13.8	3.24	15
Year ...	75.4	.....	.....	.....	12.11	47

Mean highest temperature of year ...	...	...	97.3
Mean lowest temperature of year ...	...	...	50.7
Mean annual range of temperature ...	...	...	46.6
Highest recorded reading (27 years) ...	...	...	115.0 (1899).
Lowest recorded reading (26 years) ...	...	...	32.0 (1880).
Absolute range of temperature ...	...	...	83.0

The hottest month is August, when the mean maximum is 97 deg. and the thermometer occasionally rises to 115 deg. A few miles inland

the heat quickly increases, and at a place called Borasjoor the mean maximum temperature exceeds 105 deg. from June to August, and temperatures of 115 deg. and 116 deg. are frequently recorded. A village called Daliki, a few miles from Borasjoor, is described by a missionary, the Rev. H. Marlyn, as one of nature's ulcers—a warmth of expression due to the fact that at the time of writing the thermometer marked 126 deg. in the reverend gentleman's tent. During these months the weather is rainless with strong hot westerly winds.

In the winter months the weather is less disagreeable. A good deal of rain falls between November and March, and occasional gales are experienced which, however, are amply foretold by the falling barometer and the change in the weather. Mr. Latimer Clark, during the laying of the Persian Gulf cable, experienced one of these gales. He says: "On one day, when 130 miles from Bushire, notice was received through the cable that a violent storm from north-west had passed Bushire and was on its way down the Gulf. At 3-52 p.m. the storm burst forth with great suddenness and fury. Torrents of rain swept the deck, accompanied with continuous peals of thunder. After two hours the sky grew bright, the wind changed into a gale from south-east, followed by calm."

It is quite possible that a gale of this character might do as much harm to vessels landing troops and supplies in the shallow waters of the Gulf, as did the Crimean hurricane described above. There can be little doubt that troops located on the Persian Gulf coasts would suffer seriously from the climate, but in the centre of the country the weather is much better, though the climate even there is one of extremes. Shiraz has been greatly praised by Persian poets for the salubrity of its climate, and Kum, Kashan and Ahadeh have fairly temperate conditions, but the summers are almost the summer of India and the winters almost the winter of Canada.

During June, July, August and September the day temperature rises steadily to between 90 deg. and 109 deg. and frequently reaches 107 deg. or 110 deg. F., while in the winter the frost is very severe, the thermometer at night frequently falling to 13 deg. or 18 deg. F. The weather is fine from June to October, but snow falls in November, December, January and February and rain in the remaining months. The snow-storms in winter are very severe and come on suddenly, travelling from west to east, but by keeping a careful watch on the barometer and state of the sky, notice of their approach should always be obtained.

It is hardly likely that our troops would ever be called on to serve in the Caspian Provinces of Persia, but it may be mentioned that the weather there is exceedingly unhealthy. One day in five has rain, and the weather is moist, muggy and villainous in summer and muddy in the winter with bitter winds from snow-clad mountains.

Such is a brief outline of the climatic conditions of the countries around the north and west of India. It would of course be absurd to pretend that they form an impregnable defence, because they have been overcome in the past and will be again, but they form a defensive ally whose assistance cannot be overrated. It seems almost impossible to imagine a large army, with all its necessary impedimenta, attempting to enter India in face of these climatic obstacles. If we imagine an

invasion of India similar to Napoleon's invasion of Russia, we should have to picture an immense army starting from the Herat valley, or Afghan Turkestan. The distance from either of these starting points to Kabul is about 400 miles as the crow flies, which is about equal to Napoleon's march from the Frontier to Moscow. From December to March the ground in the Herat valley is covered with snow, and the Hari Rud a frozen water-course, so that though marching and fighting would not be impossible, they could only be accomplished with great loss, and the soldiers would undergo immense hardships. Alexander left Kabul on his invasion of India in the middle of November and spent the whole winter campaigning among the mountain passes of our North-West Frontier, and what was possible then, cannot be regarded as impossible now. According to the Afghans themselves, however, the roads in Northern Afghanistan are seldom passable for troops much before May. In May the weather would clear and westerly winds set in, but the plains, to which the troops would necessarily be confined, would be frightfully unhealthy owing to the drying up of the spring rains and to the irrigated flooded lands acted on by a powerful sun. In addition there would almost certainly be occasional bad storms—possibly snow—and the loss of life among an army on the march from a sudden snow-storm may be enormous. At Shipka the 24th Russian Division lost over 6,000 men from a sudden snow-storm on December 18th-20th in 1877, and General Gourko had 2,000 men frozen to death in the same storm.

The advance also would necessarily be slow, because whenever, as is the case in Northern Afghanistan, the surface of the country is cut up with canals and irrigation channels, the marching of troops must be confined more or less to the roads, and should the available roads be few and bad, the mobility of the army must be proportionately crippled. However, supplies are plentiful and camels and transport available, so that the hostile army, though cumbered with many invalids, might reach the Bamian valley, or the Helmand valley by the end of May, and Kabul by the end of June. From Kabul to the Khyber the distance is about 130 miles and the weather during this part of the march would be fine with a high westerly wind and much dust, but nothing probably to interfere with the march of troops, the day temperatures ranging between 90 deg. and 95 deg. and the night temperatures between 50 deg. and 55 deg. As soon as the pass was reached, supposing this uninterrupted march to continue, heat troubles would commence. The day temperatures in the shade in July and August in the Khyber, rise to 103 deg. and 105 deg. and the temperature in the sun to anything between 130 deg. and 150 deg., while the reflected heat from the surrounding hills is extraordinarily trying. At Ali Musjed the wind steadily blows half a gale, and it is not unusual to have tents partially wrecked day after day by this wind.

It would be a weary and worn army which, after these experiences, would defile into the Punjab plains about the end of July. Arrived there, they would experience one of two alternatives: either like Alexander's troops they would be worn out by the gales and rains of the monsoon, or they would be baked under a tropical sun. It will be remembered that in 1899 the rains failed over Western India, and the heat

in the Punjab was intense. On the 3rd July of that year the hourly temperatures at Lahore were as follows :—

3RD JULY 1899.

HOURLY TEMPERATURE.

1 A.M.	...	...	95.9	1 P.M.	...	...	104.2
2 A.M.	...	...	95.0	2 P.M.	...	...	104.9
3 A.M.	...	...	94.6	3 P.M.	...	...	105.2
4 A.M.	...	...	94.0	4 P.M.	...	...	106.7
5 A.M.	...	...	92.9	5 P.M.	...	...	105.6
6 A.M.	...	...	92.7	6 P.M.	...	...	103.7
7 A.M.	...	...	93.9	7 P.M.	...	...	102.6
8 A.M.	...	...	95.3	8 P.M.	...	...	101.1
9 A.M.	...	...	97.0	9 P.M.	...	...	100.0
10 A.M.	...	...	99.7	10 P.M.	...	...	93.9
11 A.M.	...	...	101.3	11 P.M.	...	...	92.1
Noon	...	...	103.2	Midnight	...	...	90.5

The temperature was thus above 90 deg. all round the clock, and was above 100 deg. from 11 A.M. to 9 P.M. The hostile advance has been supposed to take place thus early, notwithstanding the monsoon and the heat, because, supposing the advance were delayed two months and the hostile army deployed on the Punjab plains in October, then assuming, as is reasonable, that the invading force would be defeated, there must be complete surrender, or a retreat only comparable with Napoleon's retreat from Moscow over the snowy wastes of Afghanistan with a hostile population on all sides,

THE EVOLUTION OF MODERN TACTICS.

PART I.

BY MAJOR G. GILBERT, 34TH SIKH PIONEERS.

To the Greeks the word *taxis* signified in a general sense, *order*, that is to say, the order pertaining to the methodical and systematic disposition of troops on the field of battle. They are popularly supposed to have been the originators of the art of war, so far as historical records go, though it would seem that if we should some day be in possession of fuller knowledge on the subject, this palm would eventually have to be conceded to the Egyptians, the oldest civilized nation known to history. Egypt was the mother of arts to Greece, as Greece in turn has been to Europe. Herodotus visited and recorded his impressions of this interesting country in the 5th century B. C., and he appears to have been convinced that the Greeks originally had acquired from Egypt not only her arts, her sciences and her civilization, but even her theology. There would seem every probability of their also having learnt the art of war from this nation of immemorial antiquity, which had mobilized immense armies before the very dawn of Hellenic national existence. The ravages of time, of revolutions and of invasions have, in the course of thousands of years before our era, occasioned the almost total obliteration of all historical records of this ancient country, and but for the permanent nature of some of her lithic monuments which have defied time and have been the means of preserving valuable hieroglyphic inscriptions now being gradually deciphered by Flinders Petrie and other eminent Egyptologists, the world might for ever have remained in entire ignorance of the nature and extreme antiquity of her civilization. It is possible fresh light may be thrown on her military institutions as has been the case with her history, her arts, and the manners and customs of her people.

The very earliest sources then of our knowledge of military science are to be traced to the Greeks. Many eminent men among them wrote works on Tactics. One of the oldest books on this subject still extant has come down to us from Ælian, a contemporary of the Emperor Hadrian. His work is really a compilation from the most authoritative books on the subject existing in his day, all of which he mentions he had read. "Homer the Poet," writes Ælian, "seems to be the first (we read of) who had the skill of embattling an army and who admired men endued with that knowledge, as appeareth by Menestheus of whom he writeth:—

'His like no living wight was found nor any age did yield,
To marshal troopes of horse or bands of foete in bloody field.'

"Concerning Homer's military discipline, the works of Strattocles and of Frontine, a man of consular dignity in our time, are to be read. Æneas perfected the theory at large, publishing many volumes of warfare which were abridged by Cyneas the Thessalian. Likewise Pyrrhus the Epirote wrote Tactics and his son Alexander and Clearchus and Pausanias and Polybius and Iphicrates and many others." It is evident that not only was there an extensive literature on military science extending back to Æneas, one of the Generals under Priam during the siege of Troy, but when we are transported back to the stirring scenes around Ilium, we are in the presence of organized and disciplined bodies of cavalry and infantry and have testimony as to their disposition in a skilful and regular manner on the field of battle. In these days when the study of military history is confined, as a rule, to a few modern campaigns, notably the Franco-German war, it may appear to many a stretch of imagination to attempt to extract facts of military interest from the writings of Homer. Many critics whilst acknowledging the beauty of style and method and dramatic vigour of his Epic, refuse at the same time to believe that the Iliad contains the delineation of historical facts. Yet the united testimony of ancient writers and of modern archaeological discoveries on the site of the city of Troy, go far to dispel these doubts and to add fresh interest to the gallant exploits of the famous soldiers engaged in the great contest portrayed therein. We have it, on the authority of Quintus Curtius, that Alexander the Great considered Homer "the only sage who had given a consummate description of the wisdom by which Empires subsist, and that he so venerated him that he was accustomed to carry the Iliad and the Odyssey always about his person and on retiring to bed laid them with his sword under his pillow. He styled them his military *Viativum* and the elements of war-like virtue." And it should be remembered that Alexander was much nearer to the events narrated by Homer, than we are to those recorded in Caesar's Commentaries.

As the works of the authors referred to by Ælian have been lost, we cannot fail to be indebted to him for having preserved to us a lucid description of the organization, equipment, drill, discipline, and tactical formations of ancient Greek Armies, and particularly of the Macedonian Army of the time of Alexander the Great. All the Greek States maintained militias which were called out for service and disbanded on the conclusion of hostilities. But King Philip himself an able tactician who had studied under Epaminondas, the famous Theban General, was the first to institute a standing Army which he brought to so great a pitch of perfection by a system of rigid discipline and drill, that it aroused the envy and alarm of the other Greek States; and on the outbreak of hostilities, Philip proved the superiority of his Army by signally defeating the confederated Greeks at the Battle of Chæronea. It was this effective and ready instrument which Alexander inherited when he succeeded his father much under the same circumstances as did Frederic the Great later.

The earliest tactical formations on the battle field of which we have record, is what might be called a *single line of ordered masses*

varying in depth, and opposing armies confronted each other in the parallel order of battle, but each in a single line. In order to illustrate this formation I shall carry the reader back to the Battle of Thymbra B.C.548. This battle was a decisive one by which Cyrus won from Cræsus the ancient Kingdom of the Heraclides; and it is interesting in this respect also, that it will enable the reader to judge of the evolitional development of the tactical formations adopted by the several nations that had in turn disputed the empire of the civilized world. But in order to convey a clear idea of what I mean to designate by the term *ordered masses*, I think it would be as well, in the first place, to explain what the Macedonian phalanx was. It was a body of 16,384 men called the *armed* or heavy infantry of the line, which stood on a front of 1,024 files and a depth of 16 ranks, that is to say, the infantry file which now consists of two men then consisted of 16. The file was the smallest unit. Ranks were formed by joining files thus, 2 files formed a Dilochoy, 4 files a Tetrarchy of 64 men; 2 Tetrarchies a Taxis, and so on by a system of duplication a Syntagma, a Penteconarchy, a Chiliarchy, a Merarchy and a Phalangarchy were successively formed, the last named body approximating to our modern Brigade and consisting of 4,096 men and stood on a front of 256 files. Its appearance would be much the same as our Brigade drawn up in line of quarter columns, without intervals between battalions. The entire Phalanx made up of four Phalangarchies originally stood in a solid body, but later on intervals (it is nowhere recorded precisely how much) were preserved between them to enable the cavalry and light infantry to pass through.

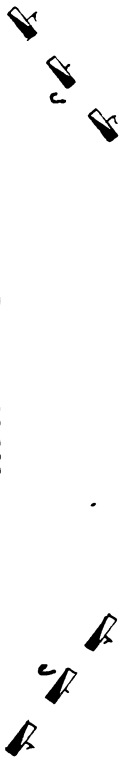
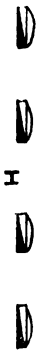
The Macedonian soldiers fell in on parade with an interval of 6 feet between ranks and files; when advancing to the attack they closed to 3 feet; and when charging they closed up shoulder to shoulder. The heavy infantry, usually called simply the Phalanx, were armed with a formidable pike (Sarissa) 21 feet long, a sword, a round target, and for protection the men wore iron helmets with plumes, cuirasses and greaves.

The auxiliary troops attached to the Phalanx were the *light armed*, or light infantry consisting of archers, slingers and darters, numbering in all half of the strength of the *armed* Phalanx or 8,192 men. They wore helmets and carried a light shield, but were otherwise unprotected with armour. They were ordinarily disposed either between the ranks of the *armed*, or on the flanks, or in rear. Their duties were to act as skirmishers and scouts and to lay ambushes. The Cavalry were organized in troops of 64 and squadrons of 128, and the establishment was half the number of *light armed*, i.e., 4,096 troopers, giving them to infantry a proportion of 1 to 6. These again were either Cataphracts or Cuirassiers and light horsemen. Their arms were the sword, the lance and the javelin. The ordinary troop formations were called the Square, consisting of 8 files and 8 ranks; the Wedge, the troop leader being at the apex; and the Rhomb being a double wedge or diamond shape. The Cavalry was posted on the flanks of the Phalanx.

To revert to the Battle of Thymbra, (see plan) the Egyptians were drawn up on a front of 120 files and a depth of 100 ranks, the formation presenting an appearance very similar to that which our infantry division would have if deployed in line of brigades in mass without intervals. The Assyrians were formed up with a depth of 30 men per file, and the Persians on a depth of 12, though their normal formation was a depth of 25 ranks. Here the evolution of the modern infantry file of two men can be traced, and it is also to be observed that the oldest nation is still adhering to the deepest mass formation, and the youngest has adopted the thinnest. This is, it seems to me, a good example of the conservativeness of military institutions, due largely to national characteristics and traditions. The next point that calls for notice is the interesting method employed in those days for combining shock tactics with fire effect. Xenophon in his description of the battle gives in detail the orders for the disposition of his troops by Cyrus for the attack. He was numerically weaker than Croesus and was particularly weak in Cavalry, though strong in engines of war, besides having 300 war chariots, of which Croesus was entirely deficient. Cyrus disposed his heavy *armed* in six divisions with war chariots in front. Immediately in rear of the *armed*, he posted the targeteers, slingers and darters, and next them in rear were the archers. He ordered the engines, such as the Romans afterwards called balistas and catapults, to take post in rear of the archers. Then followed some distance in rear, the transport carts with the camp followers and women, for whom he detailed a special guard of 2,000 Infantry and a similar number of Cavalry. On the flanks stood the Cavalry supported by chariots. Xenophon explains that a man, with a short run, could hurl his javelin or dart 60 to 80 paces with effect, and an archer could send his arrow to a distance of 600 paces, so that the tactical dispositions at once become clear. Whilst the heavy *armed* advanced with the pikes at the charge, the light armed darters and slingers shot over their heads and the archers in rear shot over the heads of the pikemen and light armed. Then as the engines which hurled stones and large darts had the longest range, and as by regulating these machines a high angle fire could be obtained, they discharged their missiles over the heads of the entire line of Infantry. Gibbon in describing the engines of the Roman period says, "that either in an oblique (high angle) or horizontal manner they discharged stones and darts with irresistible violence." As the armies approached within striking distance it is not difficult to call up a vivid picture of the clash of pikemen, the flights of missiles of all descriptions and the charges of Cavalry and chariots. Add to this the aspect of the camel corps (the first mention we have of it in history) which Herodotus states Cyrus organized in order to neutralize his deficiency of Cavalry. This corps attacked the famous Lydian Cuirassiers, whose horses refused to face the camels and they were obliged to dismount and fight on foot.

The tactical feature of this battle is the absence of reserves in the true sense of the word. The light armed aided the *armed* in their front, but they could not either reinforce them, or replace them. As

... ..



Army of King Oroesus. 420,000 men.

- A.** 120,000 Egyptian (allies) Infantry in 12 corps of 10,000 men each with a depth of 100 men per file.
- B.** Assyrian Infantry with a depth of 80 men per file.
- C.** Allied Cavalry.

Persian Army under command of King Cyrus the Great, 180,000 men.

- D.** Infantry with depth of 12 men per file (pike men.)
- E.** Light Infantry. slingers etc.,
- F.** Archers. **G.** Engines of war. **H.** Baggage.
- J.** Escort 2000 Inf. and 2000 Cavalry.
- K.** Cavalry and Camelry. **L.** 300 War Chariots.

men fell in front, those in rear closed up and continued the contest. The tactical units are very large, formed in dense solid bodies, and therefore wanting in mobility and manœuvring power. The order of battle is a single line of these large masses. Once formed it was obviously almost impossible to move these large units from one part of the battle field to another. The opposing lines met and victory was to be gained only by hacking and by penetrating the enemy's line of battle by sheer weight. The secret of the brilliant military career of Cyrus is in all probability due to his intelligent combination of shock and fire tactics,

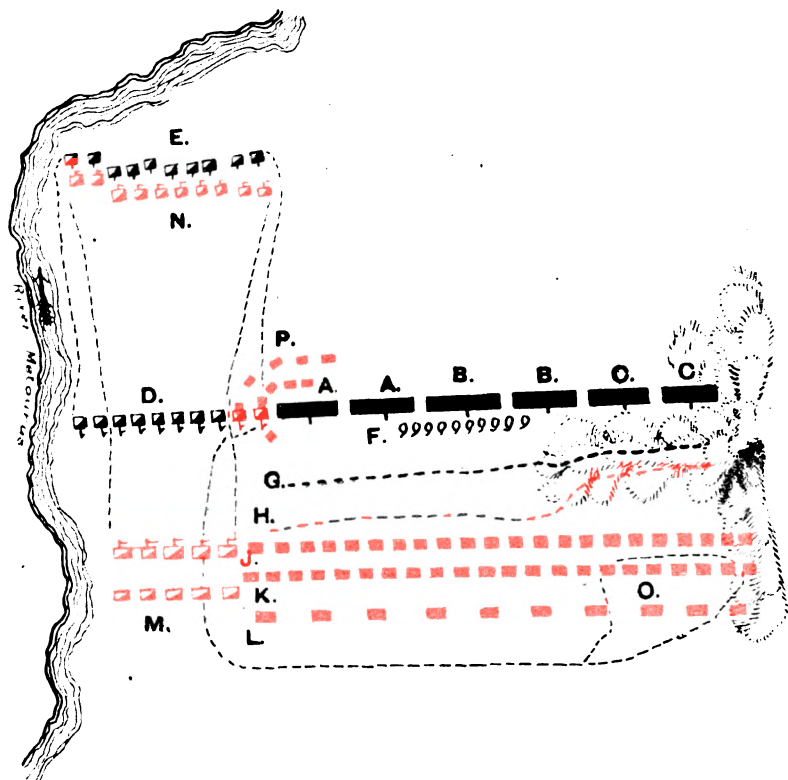
But even the Persian battle units were too large and to their want of mobility must be added a lack of discipline. For these reasons they failed to withstand the Greek Phalanx at Marathon and at Cunaxa. The Phalanx itself had been gradually reduced to smaller units with intervals. Alexander deployed his Phalanx in eight brigades or Phalangarchies with intervals at the battle of the Granicus, B. C. 334. He moreover invariably insisted on the maintenance of his troops in a high state of discipline and efficiency, and the degree of excellence to which they had attained in this respect can be judged from the following quotation from Quintus Curtius, who records the out-spoken advice of the Athenian Charidemus given to Darius on the occasion of the review of his immense army at Babylon previous to the battle of Arbela. "Their Phalanx," he warns Darius, "is a firm body of foot. The combatants and their arms being articulated in the closest order, every individual contributes to the support of the whole. They are disciplined to follow the colours and fall into the ranks at a signal. All obeying the word of command at the same moment, the common soldiers, expert as the officers, halt, wheel, extend the wings (deploy) or change the order of battle." With this discipline and the increased mobility it ensured, Alexander was enabled to carry out his remarkable oblique march at Arbela to attack the left flank of the Persian army. The Persian army was incapable of a change of front. The vulnerability of the flanks had long been recognized, but the difficulty was to turn them. The only methods recognized as practicable hitherto were, firstly, by defeating the enemy's Cavalry to assail the wings of the Infantry in flank; and, secondly, by prolonging the wings, or, in other words, by extending the front of the battle formation by reducing the depth of the files, and so overlapping the enemy's flanks and then wheeling inwards. But such a course was open to the danger of weakening the centre or other parts of the line—a matter of great concern when there were no reserves. The third method, namely, by manœuvre, was deemed to be beyond the bounds of practicability until demonstrated by Alexander. *He established the principle of a flank attack.* An oblique march carried out in the face of an enemy in position at the present day would be disastrous, but it becomes more practicable the further we recede from the era of long range weapons. It was always feasible in the days prior to the discovery of gunpowder and the invention of fire-arms. And yet it is a surprising fact that the tactical lesson taught by Alexander was either completely ignored or forgotten for a period of 2,000 years, until learnt and once more put in practice by Frederic the Great.

The Greek system of tactics in turn fell before that of the Romans at the Battle of Pydna, B. C. 168. It was revived in the 14th century owing to the Swiss victory at Morgarten in 1315, held its own for about three centuries and then finally disappeared in the 17th century, the musketeers this time proving themselves to be fatal to the continued existence of the pikemen. But how came the Phalanx to succumb to the Legion in the days of shock tactics? The legionaries did not possess weapons superior to those of the armed of the Phalanx. The latter had been resistless for centuries and it boasted of an unequalled reputation for efficiency and discipline. It had defied distance and climate and had shattered immense armies in its marvellous march of 7,000 miles from Pella to Phillour, and had returned with a world-wide fame unsurpassed by any army, before or since. What is the explanation?

Before the 1st Punic war the Consular army consisted of two Roman Legions, each of 4,200 Infantry and 300 Cavalry, and two Legions, of Italian allies of 4,200 Infantry and 900 Cavalry. So that when both Consuls took the field, they each commanded 4 Legions, or a total effective strength of 16,800 Infantry and 1,400 cavalry, with a proportion of horse to foot of 1 to 7. During the Punic Wars on the occasion of Hannibal's invasion of Italy, the Consular armies were more than doubled. The Consuls were elected annually. They were, whilst in Rome, the joint-masters of the administration. When in the field they were the Commanders-in-Chief of their respective armies, and when these armies served together, each assumed sole command on alternate days. On the expiry of their term of office they were frequently allowed to retain their commands in Italy, or appointed to a province as Pro-Consul. They had supreme powers in the preparations for war and in conducting a campaign.

The Roman Legion was organized in four distinct classes based on the principle of age. It consisted of 1,200 Velites, 1,200 Hastati, 1,200 Principes and 600 Triarii, the Velites or light Infantry were the youngest soldiers, the Hastati were the next youngest, the Principes were men in the prime of life and the Triarii were old soldiers not exceeding 45 years of age. The Hastati and Principes were each formed into 12 maniples or companies, the Triarii into 6 maniples. The Velites were distributed equally between these 30 maniples, giving to each an effective strength of 140 men. Each maniple elected 2 Centurions and 2 Optiones or Lieutenants. There were 6 Military Tribunes per Legion elected at Rome. Each of them commanded a Cohort, consisting of 5 maniples (2 Hastati, 2 Principes and 1 Triarii). The Romans had no officers of intermediary rank between Tribunes (Colonels) and Centurions (Captains), a system that still survives in the Russian Army. The Velites were armed with a sword, spear, and round target (parma) 3' in diameter and an iron head-piece without crest. The Hastati, Principes and Triarii were all dressed and equipped alike. The men carried a large curved shield (scutum) 4 feet long by 2½ feet wide, a short 2-edged Spanish sword (gladius) which was both a cutting and thrusting weapon, two short spears (pilum) 6 feet in length. They wore iron head-pieces with black plumes 18" long and breast-plates.

P L A N
O F
THE BATTLE OF THE METAURUS
B. O. 208.



The Carthaginian Army under command of Hasdrubal, 68,000 men.

- A. Corps of Spaniards (Inf.)
- B. Ligurian Infantry.
- O. Gaulish Infantry.
- D. Carthaginian Cavalry.
- E. ditto. driven back.
- F. Elephants.

- G. Light Infantry skirmishing.

Roman Army under Command of the Consuls
Livius & Nero 75,000 men.

- H. Velites skirmishing.
- J. 1st Line of Hastati.
- K. 2nd Line of Principes.
- L. 3rd Line of Triarii.
- M. Roman Cavalry.
- N. ditto. pursuing.
- O. Nero moving the Legion from right flank.
- P. Nero attacking Hasdrubals right flank.

The original tactical formation of a Roman Legion was in three lines: here we have the origin of the *principle of a 2nd or supporting Line and a 3rd Line or Reserves*. The 1st line invariably consisted of the 12 maniples of Hastati, the 2nd of the 12 maniples of Principes, and the 3rd of the 6 maniples of Triarii. At first the maniples of the 2nd and 3rd lines covered those of the 1st line as in column, but during the Spanish Wars under the Scipios, this disposition was altered and the maniples in rear covered the intervening spaces of the 1st line—(see plan of the Battle of the Metaurus). By this means, which was a great step in advance in tactics, the maniples of the 2nd line could be either ordered to advance to support the 1st line by occupying the intervals, (which were invariably maniple distance) or if the hand-to-hand contest had wearied the men of the 1st line they retired and took up the 2nd line, the Principes then continuing the contest. The historian Polybius, the friend and companion of the younger Scipios, gives a detailed description of the organization and tactics of the Roman Legion. He states that the maniple was formed in 8 ranks, there being a space of 3 feet between the files and ranks. The Infantry attack, *and the Romans always assumed the tactical offensive*, was commenced by the Velites darting forward like our Rifles in the Peninsula War to skirmish, and on the near approach of the two armies, they retired and fell in with their maniple. On coming within range the Hastati delivered a succession of rapid and effective volleys with the pilum on the word of command from the Centurions. This was done by successive ranks running forward sufficiently far to get the necessary impetus, hurling the pilum and then returning to the ranks. Finally they drew the gladius and charged. Such in brief was the Roman method of fighting. The advantages of their formation are obvious, and a distinct improvement in tactical development is observable since the days of Cyrus. Hitherto, we have seen that the Greek Phalanx had been victorious in Greece and in the East. The Roman Legion had been equally successful in the West. It is true it had suffered many crushing defeats during the Punic Wars, but the Carthaginian victories were due, not to the inferiority of the Roman tactics but, to the genius of Hannibal. As soon as Rome had found a General of capacity, such as a Nero or a Scipio, the superiority of the Roman tactics asserted itself. The Carthaginians had adopted the Phalanx formation from the Greeks.

Polybius very ably discusses the comparative merits and demerits of the Macedonian Phalanx, and the causes of its defeat by the Roman Legionary formation. People in Greece he says, at the time were amazed at the result of the battle of Pydna and could hardly credit it. In a word the Phalanx was invulnerable on level ground. When spears were brought to the charge, 5 rows of them protruded in front of the file leaders forming an impenetrable hedge. The sight seems to have made an indelible impression on the Consul Æmilius, the conqueror of King Perseus at Pydna. Polybius records that "he often confessed subsequently to his friends in Rome that he had never beheld anything more alarming and terrible than the Macedonian

Phalanx." But the strength of the Phalanx lay in the cohesion of the mass, and as the tactical unit was so large, the difficulty of preserving this cohesion on any broken ground becomes apparent. It was too ponderous a formation compared with the active maniples; it lacked the Roman system of supports and a Reserve. A formation that is incapable of adaptation to the topographical conditions of ground is faulty in the extreme and is to be condemned. At Pydna, Æmilius invited attack on ground that was in every way unfavourable to the free movements of the Phalanx, but in the battle which was accepted, the Macedonian wings got separated. The Military Tribune seizing the opportunity at once cut into the phalanx with 20 maniples and decided the day.

Alexander's flank attack by an oblique march had been eminently successful under the circumstances, but this manœuvre when employed with the entire army is not free from certain inherent tactical defects and would fail against a mobile enemy. Firstly, the manœuvre can be met by a change of front. Secondly, it is unsupported by a flank attack to hold the enemy. And, thirdly, it exposes the line of retreat. *It remained for Hannibal to establish the true principle of the flank attack combined with a frontal attack.* The battle of Trebia (see plan)—if not the most tremendous, was at any rate the most brilliant of Hannibal's victories. In his old age he often recalled it as a masterpiece of his skill in the field. The lesson was not lost on one of the most brilliant soldiers Rome produced during the war. What Hannibal had done by ambuscade, Nero effected by manœuvre in the field. The method was different but the principle was the same—(see plan of the battle of Metaurus). It is one of the surprises of history that so capable a General should have disappeared from the scene of events with his services unacknowledged. There can be no question that his manœuvre at the Metaurus won the battle and the battle saved Rome. It would appear that he belonged to the unpopular Claudian family and moreover the Romans preferred downright fighting and affected to despise the wily art of the Carthaginian. The prelude to Nero's smart piece of tactics, was his famous forced march from Apulia. Leaving his Legatus to confront Hannibal, he suddenly reinforced his colleague Livius, distant from his camp nearly 300 miles, defeated Hasdrubal and returned to his army before his absence was discovered. This is the earliest illustration of the fundamental strategic principle of operating on interior lines. Napoleon's offensive defensive on interior lines in his 1796 and 1814 campaigns, was a brilliant exposition of the same principle.

The era of the parallel order of battle in single lines of dense masses had now given place to the parallel order in three lines. Hannibal though adhering to the Phalanx, recognized the principle and adopted this formation of battle at Zama in B.C. 202. In his earlier battles he had not done so. He placed great reliance on his Cavalry arm and was a consummate master of ambuscades and surprises. The Romans on the contrary discovered the importance of having a supporting line and reserves, and from the very earliest period of their republican history we find

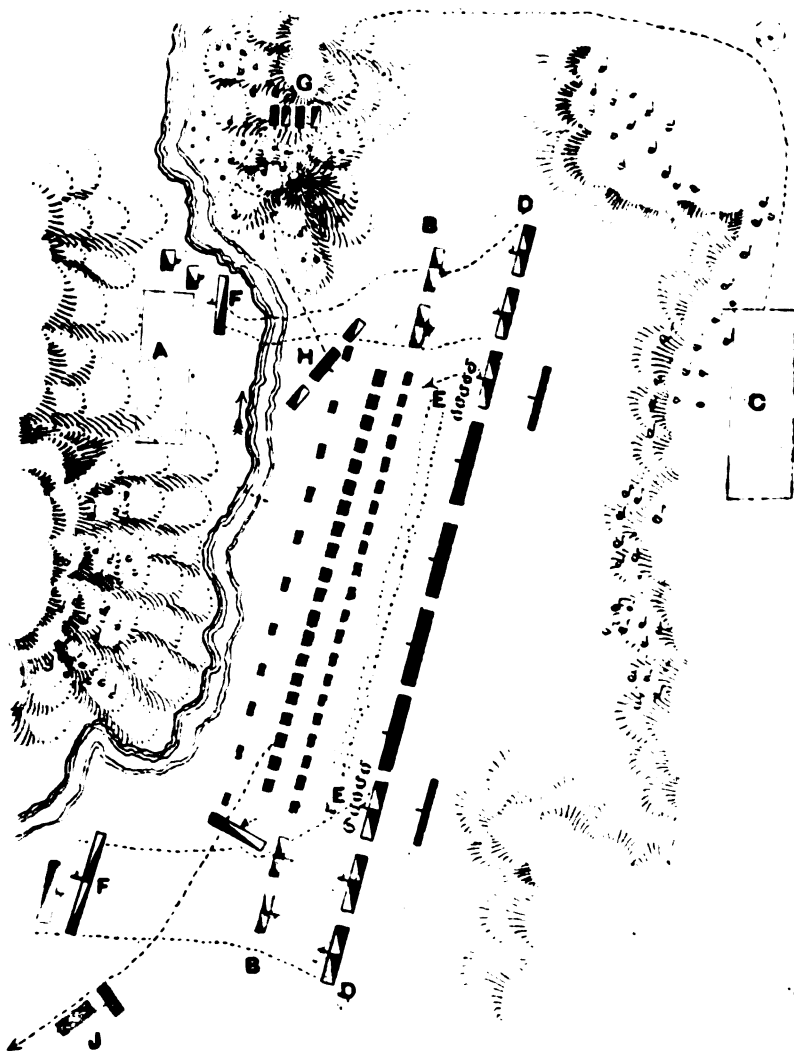
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P L A N O F THE BATTLE OF THE TREBIA B. C. 217.



- Roman Army 45,000 men with 4,000 Cavalry under Command of the Consul Sempronius.
- A. Roman Camp.
 - B. Roman Army drawn up for battle after fording the Trebia.
 - Carthaginian Army 38,000 men with 10,000 Cavalry under Hannibal.
 - O. Hannibal's Camp.
 - D. Hannibal's line of battle.
 - E. Elephants.
 - F. Hannibal's Cavalry attack successful on both flanks.
 - G. 1,000 Cavalry & 1,000 Infantry sent on previous night to lie in ambush under Command of Mago.
 - H. Mago's flank attack at Critical period of battle.
 - J. 10,000 Roman Infantry having cut their way thro' retiring to Placentia.

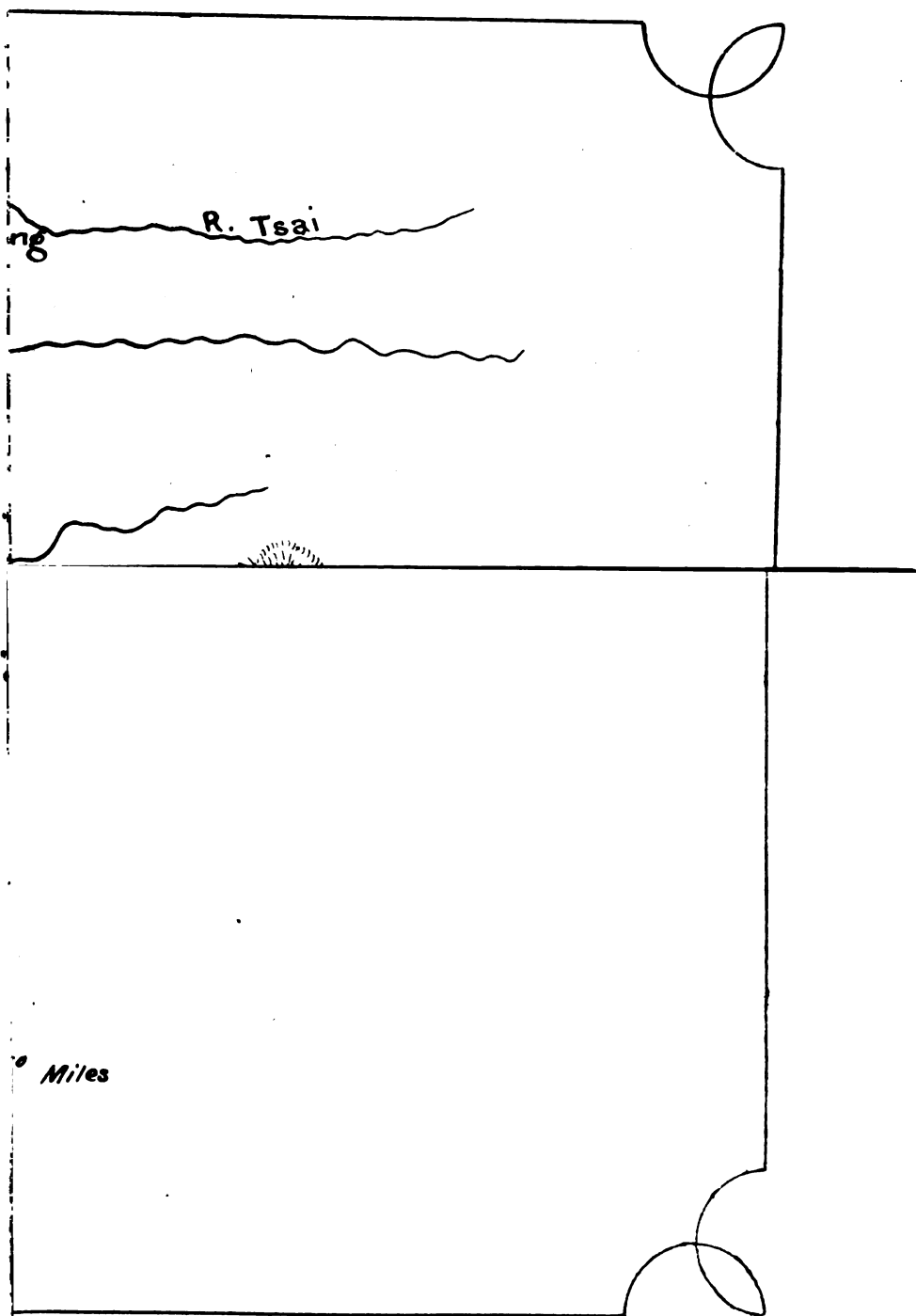
them adopting this formation. At first these lines consisted of maniple units, but in the process of time, and when we come to Cæsar's day the Cohorts on battalions had become the recognized battle units. The Romans invariably preserved a fixed proportion in their distribution of the Infantry in three lines. The first and second lines were each two-fifths, and the reserve one-fifth of the whole. The Triarii were utilized to confirm a victory or to cover a retreat. The three lines were evenly distributed over the whole front. Such a thing as detailing a portion of the army to make a flank attack was considered unconventional and absurd. Roman Generals as a rule were hide-bound by tradition and custom. There is a surprising analogy between them and some of our own Generals. They usually blundered into a battle, and by the aid of their astonishingly good Infantry generally blundered out of it successfully. They paid much attention to physical training and military exercises and drill, but the tactical art was either neglected or despised. Livy even sneers at a Roman General who actually 'imitated the wily art of the Carthaginian,' and yet they frequently paid a heavy penalty for neglecting to do so.

Ignorant, pompous and headstrong commanders like Sempronius, Flaminius and Varro, when confronted by the young, energetic, intelligent Hannibal, were as clay in the potter's hands. Trebia, Trasimene, Cannæ were terrible lessons. Such terror had been inspired by the result of these battles, that none of the older Roman Generals dare face their formidable opponent, who did not quit Italy for 14 years since the day he had first descended into the plains of Lombardy. Hannibal was eventually worsted by his own strategy and his own tactics. None could improve on it, but its lessons were not lost on Nero and on Scipio, representing the younger generation of commanders produced by the war. It is surprising to find that Hannibal's tactics so successfully imitated by those two Roman Generals, should have been eventually dropped and that tactical methods instead of gaining a fresh impetus in development, should slide back into the old traditional groove. The purely frontal system of attack and defence so intimately associated with hand-to-hand weapons still held good. The next phase in the development of tactics, is a recognition of the error underlying the systematic dispersion of the Reserves and their not being at the immediate disposal of the General in Chief at a critical moment. At the battle of Pharsalus, Pompey massed the bulk of his Cavalry on his left flank. The fact did not escape Cæsar's notice, for he at once rightly conjectured that his opponent's intention was to overwhelm his own Cavalry which was very weak, and then to attack him in flank and rear. In order to meet this emergency he posted the Tenth Legion in reserve, concentrating it in rear of his right flank. As anticipated, his Cavalry gave way, whereupon he gave the signal and the Tenth Legion deployed to the right and charged Pompey's Cavalry pilum in hand driving them off in rout. He next flung the Tenth Legion at the enemy's exposed flank, in support of his 1st and 2nd lines—(see plan of the battle of Pharsalus.) *Cæsar here proved the*

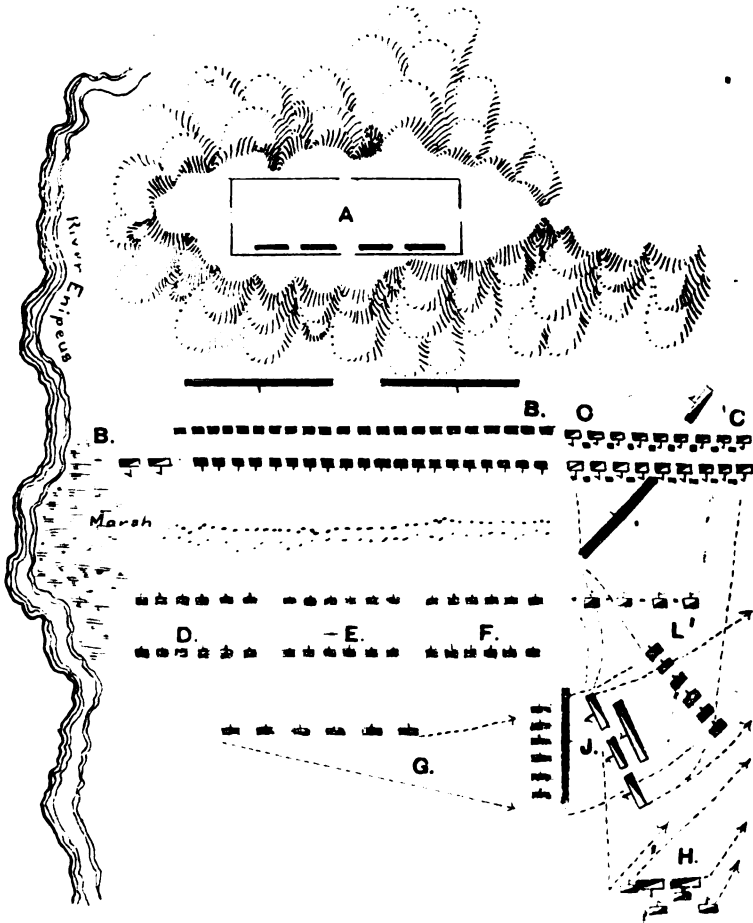
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P L A N O F THE BATTLE OF PHARSALUS B. O. 49.



- A. Pompey's Camp guarded by 7 Cohorts.
- B. " Infantry 112 Cohorts, 45,000 men.
- C. " Cavalry, 7,000 horsemen, with Maniple Supports.
- D. Left flank Caesar's Army under M. Antony
- E. Centre " " " Domition
- F. Right flank " " " Sulla
- G. Tenth Legion in Reserve.
- H. Pompey's Cavalry defeats Caesar's.
- J. Caesar meets the Enemy's Cavalry with the 10th Legion and defeats it.
- K. Caesar's counter attack with the 10th Legion.
- L. Original position of Caesar's Cavalry, 1000 strong supported by Maniples.

PLAN OF THE BATTLE OF THE TREBIA B. C. 217.



Roman Army 45,000 men with 4,000 Cavalry
under Command of the Consul Sempronius.

A. Roman Camp.

B. Roman Army drawn up for battle after fording
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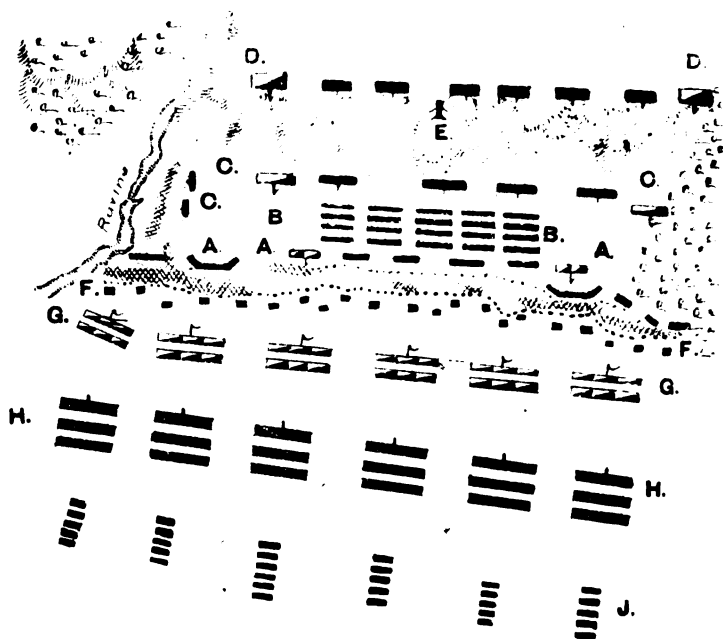
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advantage of keeping the third line or Reserve concentrated, and not spread out over the whole length of the line of battle, as had hitherto been the Roman practice. He moreover retained the Reserve under his immediate personal command. It was posted first in rear of his centre, then moved to the threatened flank and finally employed to confirm the victory. Cæsar had solved the difficult problem of how to sustain the shock of a frontal attack, and at the same time repulse a Cavalry attack on flanks or rear.

The Cæsarian period is the high-water mark of Roman tactics. This period was followed by one of remarkable stagnation in military science, somewhat brightened it is true by the revival of the art in the reigns of Trajan and Hadrian, owing to the stimulus and encouragement given by those two Emperors ; but from that time on throughout the Empire period of Rome's history, and until the final overthrow of her armies by the Gothic invaders representing the more vigorous and warlike nations of northern Europe, a gradual decline is observable in the prestige and renown of the Legionary. The Roman Legion was at its zenith when the burgess soldier's staunch courage put a stop to the splendid bid made by Hannibal for the conquest of Italy. Under Cæsar too its courage, efficiency and achievements were worthy of its highest traditions. Eventually the Legion degenerated by easy and natural gradations, until it became merely a mercenary body unable to cope with the increasing encroachments of the barbarian hordes. Ever since the great defeat of Crassus on the Euphrates by the Scythians, the ranks were filled with archers, and presently we find the Roman Infantry invariably carrying stakes which they fixed before them as a protection against the Cavalry. The ancient custom of assuming the offensive had given place to a passive defensive, until finally at the battle of Adrianople the Roman Legions were ridden down and destroyed by the Gothic squadrons. The lesson was learnt and Theodosius began to enlist Teutonic Chiefs, and from then on, the Roman infantryman lost caste and the barbarian horseman became the main support of the Empire in its declining days.

The battle of Adrianople, A. D. 378, marks the commencement of the era of Cavalry which lasted for a thousand years. The custom of ages had been suddenly inverted, the Infantry being gradually relegated to garrison duties, or used as mere auxiliaries in the field. Frequently battles were fought with entire armies of Cavalry. The belief had steadily gained ground that it was more honourable to fight on horseback and that no Infantry could withstand Cavalry. This, in the face of the teachings of history, was a strange generalization. It was not perceived that the subversion of Infantry was due to its deterioration. Of course the army of Charles Martel at the battle of Tours was composed largely of Infantry, and most of the Germanic nations adhered to their Infantry, but on the contrary Belisarius and Narses, for a space, swept back the Gothic invasions of Italy with the aid of their Cavalry armies, and it may be said that generally speaking the horsemen held sway in Europe and Asia. The era of Cavalry inaugurates the age of knights in armour. During the whole of this

P L A N O F THE BATTLE OF CRECY 28th August 1346.



English Army, 30,000 men under command of King Edward III.

- A. 1st Line commanded by the Black Prince, 800 Knights, 1,000 Welsh Light Inf. 2,000 Archers.
- B. 2nd Line, 20,000 Welsh and Irish Infantry.
- C. 3rd Line, 800 Knights, 1,200 Archers under command of Earls of Northampton & Arundel.
- D. Reserve 700 Knights, 2,000 Archers, 6 cannon under King Edward III.
- E. The wind mill.

French Army, 100,000 men under command of King Philip VI.

- F. 15,000 Genoese cross-bowmen under Doria and Grimaldi.
- G. French Cavalry under Counts D'Alencon and D'Flanders (1st Line.)
- H. 2nd Line French Infantry under King Philip VI.
- J. 3rd Line ditto ditto.

period there is much war. But of art in war there is little or none. Bodies of horsemen encased in armour with couched lances hurl themselves one against the other. Victory is decided by momentum, impact and weight, Generals fighting like common troopers, and one and all animated with the idea that every thing depends on the strong arm and the trusty sword. The real art of war had ended with Cæsar. For its renaissance we are indebted to Gustavus Adolphus. The brilliant period of tactical development extending over the three centuries before our era is entirely submerged and practically lost sight of for a period of sixteen centuries, when it is once more revived and is followed by another period of great activity and rapid development culminating in what is now called grand tactics.

In the 13th century there was a revival of Greek tactics in Europe, and once more the Phalanx was seen in the field. The hardy Swiss peasants at the battle of Morgarten in 1315 were the first to arrest the supremacy of Cavalry and to prove that the armoured knights may dash themselves in vain against their hedge of pikes. A few years later the battle of Crecy (see plan) had a still more profound and startling effect throughout Europe and at Poitiers the value of Infantry was again confirmed. This revolution was effected by the English long-bowman, who proved that with his cloth-yard shaft he could annihilate the best Cavalry at a distance. In this we do not see evolution, but a revival. Europe had forgotten the art of war, but the study of tactics was presently to receive a great stimulus in the Dutch and Swedish schools of war. From the battle of Crecy onwards, the steady increase of the Infantry is observable and Cavalry once more resumes the rôle of an auxiliary arm, yet it is slow in reverting, and even in the wars of the 17th century we find the proportion of Cavalry to Infantry in the Armies commanded by Gustavus, Tilly, Wallenstein, Turenne and Condé, as high as from 30 to 60 per cent. of the entire army. The revival of Infantry also synchronises with the introduction of gunpowder and the invention of cannon and firearms. These latter, were at first of extremely crude construction and their development on practical lines was slow. Meantime the Phalanx, called by the Spaniards *tercias*, held its own for three centuries. Gradually the musket was improved, first by the Prince of Nassaw and again by Gustavus who was the first to reduce the pikemen and to organize entire battalions of musketeers, but the pike did not finally disappear until near the close of the 17th century.

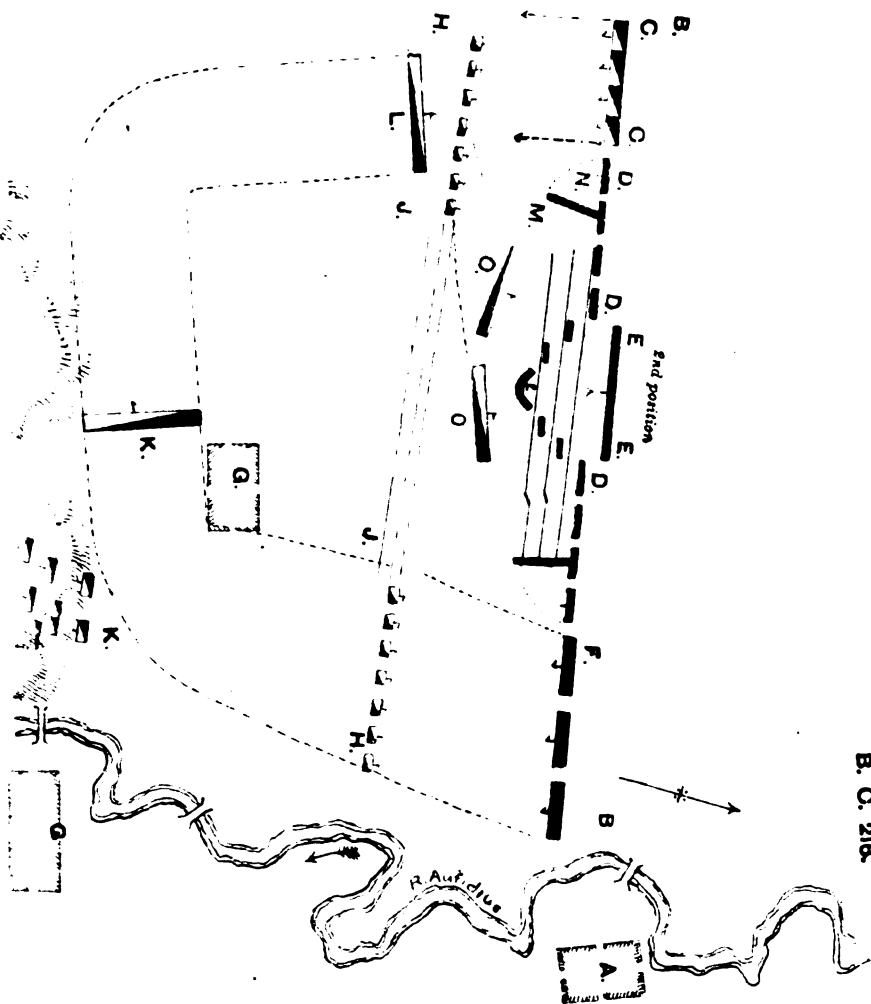
Meanwhile throughout the whole period dealt with in this paper, the organization and tactics of Cavalry remained unaltered. The chief functions of Cavalry as an auxiliary arm have always been the same, that is, to gain information and to afford protection to the main body of the army. It was invariably posted on the flanks of the Infantry in line of battle, and its duties were to protect those flanks, to endeavour to defeat the enemy's horsemen similarly posted; and to attack his flanks and rear. Finally the most important duty which devolved on Cavalry was the sustained pursuit of a defeated enemy. Times out of number we find instances in history of Cavalry commanders pursuing a defeated wing of the enemy's

horsemen too far, during the initial stage of a battle and before victory had declared itself. The difficulty has always been for commanders to know when to check the pursuit to rally their squadrons and to return to the battle field. History teems with instances of battles having been lost by the unchecked impetuosity of a Cavalry pursuit. Alexander himself and Gustavus were guilty of this error. Perhaps the best example of Cavalry shock tactics is afforded by Hasdrubal's brilliant manœuvres at the battle of Cannæ (see plan of the battle). He there proved himself one of the ablest Cavalry commanders of any age. Having with his heavy Cavalry swept the Roman horse of the right wing off the field, he rallied his squadrons, then swept along the rear of the Roman army, wheeled to his right and thundered down on the remaining Roman squadrons engaged with Hanno's Numidians. Having annihilated them he turned his attention to the Roman Infantry, attacking them in rear. The same manœuvre was successfully carried out in a precisely similar manner by Condé at the battle of Rocroy in 1643, and partially by Cromwell at Naseby.

My object in writing this article is to endeavour to stimulate interest in a wide study of the art of war, by showing that tactics is not the creation of modern times, but that it contains principles which have been gradually evolved by the great Captains of successive nations and ages; and that a correct grasp of *tactical tendencies towards higher development* cannot be accurately gauged without first thoroughly appreciating the evolutionary stages through which the art as it stands at the present day has progressed. I have endeavoured to show that at rare intervals of time, a great soldier emerges out of the ruck of mediocrity around him and advances the science of war by the addition of some new tactical principle. We are prone to put his achievements down to heaven-born genius, forgetting that all great Generals are fallible like other men and have their limitations; forgetting also what Napoleon often impressed on his subordinates, that the conditions which go to make a great Captain are intellect, character, study and opportunity. He was himself essentially a great student, and what he had not read of military history was not worth reading. "Tactics," says Napoleon, "drill movements, the science of the Artillery officer may be learnt in treatises, but the knowledge of grand tactics is only acquired by experience and by the study of the history of the campaigns of all the great Captains." We have an excellent manual at present called "Combined Training" which enumerates what Lord Roberts in its preface calls "certain principles which have been evolved by experience as generally applicable to the leading of troops in war." Now this manual can be learnt practically by heart by any officer, and yet there are many who find the greatest difficulty in intelligently applying those principles in the field. This may be due to causes other than a want of personal experience, but may it not also be attributable in a great measure to a lack of knowledge of the experience and methods of those great Generals who by their achievements have created those very principles?

(To be continued.)

PLAN OF THE BATTLE OF CANNÆ B. O. 216.



- A. Hannibal's Camp.
- B. " Army 40,000 Infantry and 10,000 Cavalry.
- C. The Numidian Cavalry under Hanno.
- D. African Infantry on the wings.
- E. Gaulish and Spanish Infantry forming centre under Mago.
- F. Heavy Gaulish and Spanish Cavalry under Hasdrubal.
- G. Roman Greater and lesser camps.
- H. Roman Army under the consul Varro.
- I. Roman Infantry drawn up in maniple columns with hardly any intervals. Varro reverts to old battle formation.
- J. In accordance with Hannibal's orders Hasdrubal charges the Roman R. W. Cavalry, drives it off the field and rallies his Squadrons.
- K. Hasdrubal wheels round & attacks the Roman L. W. Cavalry in rear.
- L. Roman Infantry drives back Hannibal's centre.
- M. Hannibal orders the Africans to wheel inwards and attack Romans in flank.
- N. The entire Cavalry under Hasdrubal and Hanno attack the Roman Infantry in rear.

CAN CAVALRY CHARGE UNBROKEN INFANTRY ?

BY CAPTAIN E. TENNANT, 10TH DECCAN HORSE.

As it would be impossible in a single article to discuss the whole question of modern Cavalry tactics, I shall merely endeavour this morning to establish the fact that *a Cavalry charge against modern rifle fire is feasible*. As to what formation should be adopted and upon what occasion dismounted action should take the place of mounted—*these are matters beyond the scope of this paper*—all I ask, at present, is :

CAN CAVALRY CHARGE UNBROKEN INFANTRY.

I suppose that if this question were asked in an examination paper, an overwhelming number of the replies received would be in the negative, and quite naturally so, as the late Commander-in-Chief himself, in his preface to the new Cavalry drill book, says that " it is a recognized fact that for many years past it has not been possible for Cavalry to act effectively against unbroken Infantry ".

I trust I shall not be considered presumptuous if I venture to somewhat modify this statement, as the more one thinks over it, the more it appears to require modification. If Lord Roberts had said " a recognized theory " instead of a " recognized fact," no one would have disputed the point, though many might have refused to believe the theory. The last occasion upon which Cavalry were employed in civilized warfare in any numbers, was in the Russo-Turkish war of 1878, when no shock tactics were attempted and hence no *facts* can be obtained from that campaign. The war preceding this was the Franco-German, and then shock tactics were undoubtedly resorted to, with very considerable effect as I shall point out later on. When it is remembered that the French were armed with the B. L. Chassepot rifle which was sighted to practically the same distance as the Martini-Henry and had an equal muzzle velocity, it is absurd to say that the conditions under which those battles were fought have become so radically altered since, that they have no longer any value as guides to indicate the methods that will be employed in the future.

As Mr. Chamberlain said in one of his speeches last year—it is presumptuous folly on our part to imagine that the English are the only sensible people in the world and that all the rest are fools, and yet this is practically what we are doing, by ignoring the fact that far from reducing the numbers of their Cavalry, the great European powers are straining every nerve to increase their Squadrons ; and further, that these horsemen are not for one moment intended to play the part of mounted infantrymen, but to carry out the true Cavalry role. The

argument that we can never hope to have sufficient Cavalry to enable us to cope with that of the great continental powers, is quite beside the mark. What I want to get at now is, upon what grounds the statement that Cavalry cannot charge unbroke Infantry is founded?

In a book on Cavalry published in 1863, *i.e.*, at the time when the Prussian needle gun was first introduced, and previous to the wars of 1866 or 1870 the opening lines are as follows:—

"It has often been asserted, and not unfrequently even in military circles, that owing to the recent improvements in firearms, Cavalry has lost its importance and can henceforth perform only a secondary part on the field of battle." Now this was written over fifty years ago, so that the theory is by no means a new one, and yet this "recognized fact" remains at the present day as great a point of controversy as ever. It is a most extraordinary thing also that in the text itself of the new "Cavalry Training" it is distinctly stated that "Cavalry may charge a body of Infantry *successfully*" under certain conditions, not one of which requires that the Infantry shall be already broken; in fact these conditions are such that no Cavalry leader of any note, during the last 200 years, would ever have attempted to attack Infantry in any other manner, unless as a forlorn hope in order to extricate other troops.

They are as follows:—

- (1) that the Infantry have no time to form in order to repel the attack with effective fire;
- (2) that they are demoralized or shaken during an action or pursuit;
- (3) that their attention is occupied in repelling an attack from another quarter.

In another place in the preface it says "I cannot agree with those military experts (mark the word, the verdict of our Generals is not so unanimous after all) who hold that in future wars Cavalry shock tactics will form as prominent a part as heretofore. I think the improvement in firearms will give the victory to the side which can first dismount on ground less favourable to a charge than an open plain." And yet in the body of the book it is laid down that "the men are *never* to be dismounted in any position where mounted opposing Cavalry could attack them" and an offensive attack *dismounted*, should only be undertaken when the object in view cannot be attained *by any other means*.

The inference to be drawn from these extracts from the book itself do not tend to uphold the dictum that instead of the firearm being an adjunct to the sword, the sword must henceforth be an adjunct to the rifle, in fact it is ordered that the rifle is to be resorted to, on the offensive, *only when all* other means fail, and on the defensive, never against Cavalry if the ground admits of their making a charge. If words mean anything, surely this is giving to the "arme blanche" the place of honour and to the rifle a secondary position—and yet I am sure all will agree with Lord Roberts when he says: "the Commander who makes use of his rifle fire in an intelligent manner, will beat the Commander who despises the deadly weapon about to be placed in the

hands of our Cavalry soldiers." The crux is, what is "an intelligent manner?"

No one will deny that Cavalry charges against Infantry have been successful in the past on many notable occasions, and it will be my endeavour now to prove that there is no solid reason why such charges should not be made in the future with equal chances of success. The conclusion must not be drawn from this that I am claiming that Cavalry is capable of cutting up Infantry at all times and in all places; no one has ever claimed this for Cavalry at any period of history. No one proposes, or ever has proposed, to hurl Cavalry at unshaken Infantry behind solid entrenchments—all I contend is, that modern weapons and modern tactics have in reality made the task no harder than it was 200 years ago, whereas the results of a successful charge nowadays will have a far greater effect on the issue of the battle than was usually the case in the past.

Now at the outset I am ready to admit that my contention is only theory, but it is theory backed by the teaching of history, and on the other hand I challenge my opponents to disprove my arguments by any thing more convincing than theory either, and moreover I have the advantage over them, in that this is by no means the first time that this question has been raised, and on every single occasion the arguments against the feasibility of a Cavalry charge have proved fallacious.

Now, why is this? I take it that one great reason is that the human factor has not been taken into account.

"The moral effect of Cavalry," says General Hart in his 'Reflections on the Art of War' "is often incalculable and far out of proportion to the actual losses it inflicts, and indeed the mere approach of Cavalry is apt to have a paralyzing effect on an Infantry advance and to arrest its progress at least for a while."

A French writer in the "*Revue des Deux Mondes*" says: "But who can have an idea of the principles of war so narrow and so primitive, as to imagine that the importance of Cavalry is measured by the material losses its sword inflicts. The 5,000 Cuirassiers who charged at Aspern, the 80 Squadrons, who, at Eylau, charged the centre of the Russian Army, the masses of Cavalry that inundated the plains of Waterloo, the 6 Squadrons of Bredow that perished at Vionville, did they produce by their shock any really sensible losses? Assuredly not—and it matters little, for they secured considerable tactical results". Bredow's 6 Squadrons paralyzed the whole French Army.

Lord Wolseley says "I have witnessed more than once the dread entertained by good Infantry for Cavalry. Let there be the slightest suspicion of Cavalry charging—let but a few horsemen show themselves in the vicinity, and I have always found it have a most unsteady effect upon the men. The moral effect of Cavalry increases in geometrical ratio to its numbers."

Napier says, "it is better to kill fifty men in an enemy's battalion if that makes the rest run away, than to kill a hundred if the rest stand firm."

Alison says "victory depends not so much on the losses inflicted upon the enemy, as on the moral effect produced," and again "expe-

rience in every age has demonstrated, that after the protracted excitement of a great battle, the bravest soldiers become unstrung, and at such a moment the attack of a few fresh troops often produces the most extraordinary results."

"The long and fearful excitement of battle once relaxed leaves the toilworn frame nerveless and exhausted and the mind itself destitute of the energy requisite for any renewal of vigorous exertion. A bold onset made by a few resolute men on troops which have maintained, even successfully, a hard day's combat, is almost sure to turn the scale in favour of the new assailants."

Now all these writers agree that the moral effect of a body of Cavalry charging Infantry is enormous, and yet some people say that it is a thing that will never be done in the future. Is it that the modern Infantryman is made of tougher stuff than his ancestors? Well, in the old days ordinary Infantry were supposed to be able to sustain a loss of 30 per cent. before any anxiety arose about their standing firm, and then the carnage took place before their very eyes. At Ligny and Waterloo there were over 15,000 killed and wounded to the square mile. Or is it that the Magazine rifle with its non-stopping bullet is such a deadly weapon, that Cavalry must be annihilated long before they can drive their charge home? I am inclined to think that this is the backbone of the argument, for in an article which appeared in a recent number of the Journal of the United Service Institution of India entitled "Finis Equi" (the title explains the subject of the article) the writer says:—

"The worship of the rifle and devotion to the solution of the problem of how to kill a man mathematically, have been, and are, the main articles in the cult of the modern leaders in war."

It was Suwaroff's maxim that "the weapon itself is nothing, the man behind it is everything," and strangely enough the author of "Finis Equi" actually goes out of his way to prove the truth of this statement, for he says "we cannot at the same time forget that in the last great war 1870-71, the side which had the best rifle suffered the severest defeat of modern times. 90,000 of them with their Chassepots surrendered at Sedan to 60,000 Germans; of the army which had the best rifle, 12,000 officers and 370,000 men were made prisoners. Many reasons can be, and have been, given for this extraordinary result, but nobody has ever been so bold as to give the superiority of the French rifle as a reason." Well to my mind the truth is, that the effect of rifle fire is, and always has been greatly over-estimated.

I propose briefly to draw attention to the different periods when, owing to a change or an improvement in the armament of Infantry, Cavalry charges were supposed to be no longer feasible, and the reasons why such anticipations were never realized. "No one," says Mahan "can be said to have thoroughly mastered his art, who has neglected to make himself conversant with its early history, nor indeed can any tolerably clear elementary notions ever be formed of an art beyond those furnished by the more technical language, without some historical knowledge of its rise and progress, for this alone can give to the mind those means of comparison, without which

everything has to be painfully created anew, to reach perfection only after many cycles of misdirected mental toil."

In describing the effect produced by the introduction of fire-arms in the 15th century, Róomer says "men were appalled by the terrors of gunpowder, the thunders of cannon intensified the awfulness of battle, and from the moment when small arms began to be employed, the downfall of Cavalry was confidently predicted."

Warnery writes that, after the battle of Novara in 1513, Francis became disgusted with Cavalry, believing that it was useless against Infantry armed with pikes and arquebuses. But what was the actual result. The Infantry were no longer able to manoeuvre and fight in solid squares as heretofore, both on account of the large target they presented, and also because they could not make the most effective use of their weapons when in this formation, and hence lines, from 3 to 12 deep, were substituted. Thus Cavalry found its sphere of action vastly enlarged. With the ever-increasing effect of firearms, these deep Infantry formations had to be reduced in the same ratio, and thus the physical obstacle to a Cavalry charge was correspondingly reduced. Was this reduction of the physical obstacle compensated for by an increase in the density of the fire power? The reply is in the negative. In Cromwell's time a line of men, 12 deep could deliver a continuous fire of 12 shots a minute. In Frederick the Great's time the Prussian Infantry, in lines 3 deep could fire 13 shots per minute, per yard of front. Then came the introduction of muzzle-loading rifles which, although increasing the accuracy, rather reduced the rate of fire, and since then not even the breech-loader or Magazine rifle have been able to exceed this rate. Writing in 1863, before the introduction of breech-loaders, Róomer says "Let us now give a moment's attention to the rifled gun which then (*i.e.*, in the Italian campaign of 1859) first appeared, and which has since created the same alarm as fire-arms did at their first employment on the battlefield, and at every subsequent improvement inspiring anxious solicitude for the safety of Cavalry. Certainly a matter of so such moment may not be left unnoticed, for if the aim of Infantry has really become so accurate as to ensure inevitable damage to man and horse, it would be idle for us to enter into any further discussion on the subject of Cavalry." Speaking of rifle practice in Austria, he tells us that firing at 820 yards, 95 per cent., of the balls struck the target, 6' x 55'; at 1,230 yards, 49 per cent., and as regards penetration at 1,640 yards, the ball pierced three deal boards, each 1'02" thick placed 1 foot apart, one in rear of the other. He continues: "These experiments are all interesting enough and must be resorted to to ascertain what can be done, though they can never be relied upon to foreshow what *will be done* in the presence of the enemy—in war—practice often plays strange pranks with theory. Now the rifle with which these results were obtained was far inferior to the Prussian needle gun, which in its turn was far behind the Chassepot, and yet the Austrians at range practice in 1858, were able to obtain nearly 50 per cent. of hits on a sectional target, nearly three quarters of a mile away.

The dimensions of the target would roughly represent a troop of Cavalry (the height is two feet less) and hence it is not surprising that, even at that time, certain musketry enthusiasts declared that Cavalry charges would no longer be possible in the future.

Again; in Frederick's time the musket was an 8 bore and fired a charge of 14 oz of powder. A spherical 8 bore bullet would drop a man or a horse on the spot, whereas the modern small bore bullet has so little stopping power, that we dare not even rely on it to check a rush of savages. Of what use then would it be to stop Cavalry charging home? In the foot note on page 39 of "Combined Training", it says it is impossible to give at all an accurate estimate of the number of rifles required for the defence of entrenchments; as a rough rule, two battalions at full war establishment should be sufficient to occupy a mile of front, exclusive of the general reserve." Now if we take this estimate as a starting-point, we see that even if supports and local reserves are included in the firing line, and allowing for no casualties, we cannot get a denser line than one man per yard of front, and I venture to say, that this is a much denser line than would ever be the case in war; however, for the sake of argument, let us assume that it is so, then how many bullets per minute, per yard of front, could they fire? When it is remembered that magazines have to be charged—for it is unlikely that they would all be full—and in any case they only hold 10 rounds, I think I am not under estimating it, when I say that an *average* of 10 rounds per minute would be the maximum, and yet in Frederick's time it was 13 rounds per minute.

Imagine a front some 7 or 8 miles long, in undulating country, similar to that of the Deccan, to be held by Infantry in shelter trenches of the latest and most improved pattern. The attacking Infantry have come within effective range (say 1,300 yards) their artillery, firing over their heads, is deluging the position with shrapnell. The defender's firing line has been reinforced with supports and local reserves, till the front is held by one man per yard. Nerves are strained to the utmost, the excitement is intense. Suddenly, from behind a fold in the ground, about 1,000 yards away, a line of the enemy's Cavalry, ten or twelve Squadrons, is seen to be galloping straight upon the position; unless stopped they will reach it in two minutes! There is no time to adjust sights, there are no friendly Cavalry to oppose them with, as they have all been converted into mounted Infantry—the attacking Infantry are now advancing behind, and in support of, their Cavalry, will the defenders be able to wipe out the Cavalry before they charge home?

The next big European war will settle the question, but as a means of obtaining some data with which to work on, I suggest the following scheme as one of the field practices that could be carried out during the annual musketry course.

Place a squad of 10 men in a shelter trench 10 yards long to represent a portion of the defender's firing line. Not more than 50 per cent. of magazines to be charged, but all rifles to be loaded and at the ready, sights adjusted to 1,300 yards—men to be completely under cover and to fire through loop holes.

On a G. sounding, a target 30' x 8', to represent 10 cavalry men riding knee to knee, will appear at *about* 1,000 yards, but actual distance unknown. As soon as the target appears, but not before, the Superintending officer will give the word "commence," thereupon the section commander will issue the necessary instructions to his men to fire. The target will remain exposed 20" and immediately it disappears another, of the same dimensions, will be raised somewhere about 800 yards, which will also be exposed for 20" and then a third at about 600 yards for another 20." Total time allowed 1 minute from the order "commence." The Cavalry, if not annihilated would now be within about 400 yards of the position. If bayonets are going to be fixed, the firing would now necessarily cease, if they are not fixed and the Cavalry are not annihilated, even supposing the Infantry stood firm, the firing would be wild beyond description and little or no aim taken.

Now I have been unable to carry out this experiment myself, and so cannot give you any figures, but for the sake of argument we will imagine that each man has been able to fire *twelve* rounds in the minute, and that each shot has struck the target, that would make a total of 120 hits.

As the Cavalry, when charging Infantry, would *not* be knee to knee, all these hits would not necessarily mean men struck, but on the present occasion we will assume that they do. What percentage must we then deduct from this peace practice to obtain a "war" result? Colonel Pilcher, in a book which has been highly recommended says, "The principal factors which enter into firing in the field, but which are absent on the range are (1) nerves, (2) difficulty in judging distance, (3) difficulty of selecting a target. These three factors are so great, as to reduce to 1-50th, or 1-100th, the results which would be effected on a measured range and with no bullets coming the other way." And in another place, on page 31, he says:—"If a group rode unsuspectingly into a dozen of the enemy, *concealed* and prepared for them, and were 'hands-upped' and if the group turned and galloped, it was at least even money on their getting away untouched." If we take this estimate as accurate, the number of the attacking Cavalry that would be hit, would only be between 20 and 30 per cent of the 1st line, and a complete 2nd line would be following them. Further, I think I am not claiming too much when I say that out of the number of bullets which actually struck the Cavalry, not more than one fourth would be able to prevent either man or horse from completing the charge. One very common objection to the practicability of Cavalry thus charging Infantry in position is, that the Infantry would be posted on hilly, broken ground over which the Cavalry could not gallop. I may point out that the experience of the Boer War goes to show that when the defending Infantry took up a position along a ridge, the mark was so well defined, that the attacking Artillery were able to prevent the enemy from making effective use of their rifles, and in consequence of this, the Boers adopted the plan of placing their Infantry on the level ground well in front of the ridge, secondly, that the defenders do not

often have either the time or the materials for covering their front with artificial obstacles, and finally, that in a front of some 7 or 8 miles, it will always be possible to find some spot where the Cavalry could get through—so far as the difficulties of the ground are concerned. But to continue, during the Italian campaign of 1859, both armies were provided with rifled firearms, and we have seen the skill of the Austrians as marksmen ; moreover, the French had rifled cannon. According to theory, the carnage must have been dreadful and the mortality greater than on any previous occasion. But do we find it so? Quite the contrary. Thus at Solferino, where two armies for more than 12 hours tenaciously disputed the victory, we find that the losses on both sides were actually less than in the *least* bloody battles of the Empire. The Austrians fired about 8½ million cartridges, which killed about 3,000 French and Sardinians, and wounded some 10,000 more, *i.e.*, one man was killed for every 4,200 shots fired”.

Referring to this Roemer says :—

“In thus investigating the new rifled fire arms, to ascertain what they can do and what not, and in what degree they increase the dangers of those exposed to them, we do not design to underrate their value as powerful engines of war. On the contrary, we sincerely desire to understand their real worth, as it is our interest to do, but while acknowledging the power of these engines of destruction we should be careful not to exaggerate their importance and come to extreme conclusions in regard to their efficiency on the field of battle. History abounds in inventions of the kind—slings, bows, cross-bows, arquebuses, culverines, petronels, muskets with matchlocks, wheel-locks, flint locks, percussion-locks, pistols of all descriptions from the blunderbuss to the Colt’s revolver. Some of these at their first appearance created much greater sensation than any of the new rifles do, yet tactics have always been equal to the circumstances. Every advance in the art of war has, moreover, been invariably attended with a corresponding decrease of mortality, and every new engine of destruction seems to have been the means of obtaining victory at less expense of life.” But there is another point which the advocates of the rifle often bring forward, and that is, that not only have range, accuracy, and ease in loading, surpassed anything that was ever contemplated in former times, but that owing to the flatness of the trajectory of the present weapon, the deadly effect of rifle fire has been enormously increased. In reply to this, I cannot do better than quote a passage from Colonel Maude’s excellent book entitled “Cavalry : its past and future.” He says :—

“The discipline of the firers at the moment chosen for attack, being equal, then 20,000 bullets a minute from a front 1,000 yards long, will do *precisely* the same amount of damage, whether they are thrown out of Mausers, Chassepots or any other weapon. I have said *precisely*, but this is not strictly accurate, there is still the question of range and trajectory to be dealt with, and here I venture to contradict directly the accepted theory that flatness of trajectory is a factor of ruling importance. Undoubtedly it would be, if all rifles were fired *strictly parallel to the ground plane*, but the moment any

unintentional elevation is given to the weapon, whether by jerky hands, or from whatever other cause, the higher the velocity, the less the probability of even a chance hit becomes. Startling though this assertion may seem, it is an absolute mathematical fact, and is sufficiently proved by the unprecedentedly low rate of casualties throughout the Boer War."

This practically concludes the arguments in support of my contention. I shall now briefly run through the pages of history and endeavour to show that in every single campaign of importance within the last 200 years, in which Cavalry have been employed in any numbers, the moral effect of a charge has never varied, and that the results that can be attained thereby are every bit as astounding, and not one whit more costly now than they ever were in former times. That the instances are not more numerous I attribute, not to the fact that charges were not more often practicable, but that the Cavalry had been trained to underrate its own power and to entertain an exaggerated opinion of the effects of rifle fire, and were consequently kept in the background; or in those cases where charges failed, that the Cavalry were badly led and asked to perform feats far beyond what the great masters would have ever attempted. Of course I am well aware at the outset that those whose opinions differ from mine will draw attention to numberless occasions where Infantry have defeated Cavalry, but we might as logically infer from the various instances in which Infantry have been broken by Cavalry, that Infantry is no longer good for anything, as that the day of the charge is over; a sound judgment does not draw its conclusions from exceptional and isolated cases, but from the ensemble of facts and circumstances, and in a Cavalry charge how many are the *conditions of success* and how little can cause its failure.

Commencing with Marlborough's wars, we find the organisation of European armies as follows:—

Infantry in battalions of 13 companies of 50 men each, the fighting formation being in four ranks, sometimes in three. The men were armed with muskets and socket bayonets. At Blenheim, the vigorous assaults of the allies on the French position failed, until Marlborough succeeded in sending his Cavalry—on which he relied for his chief manœuvre—across the morass which separated the armies. In two charges the French were driven in and fled.

The next great European war was that of the Austrian succession 1740—1748. At the battle of Hohenfriedburg in 1745, the Baireuth Dragoons rode down 21 battalions, captured 5 guns and made 4,000 prisoners.

In the "Seven Years War"—at the battle of Rossbach in 1757, 38 squadrons, 18 guns and 7 battalions of Infantry (for these were all the Prussians that actually took part in the battle) defeated 64,000 men in one hour from the time the first gun was fired. This battle affords one of the best instances of the enormous moral effect of Cavalry, when properly led and supported. The French were surprised of course, but before the Prussian Cavalry charged they were by no means either shaken or demoralized, as they were advancing under the impression

that they had outmanœuvred Frederick and were cutting his line of retreat.

We now come to the period of the French Revolution. On the 24th April 1794, two British and two Austrian squadrons routed and dispersed about 3,000 French Infantry with 3 guns; and two days later at Chateau Cambresis, an Austrian Cuirassier Regiment and nine squadrons of British Cavalry, broke and dispersed some 27,000 French Infantry and Artillery, and took 3,000 prisoners and 22 guns. Later on in the same day they attacked, with two Austrian and 4 British squadrons a fresh column, routing it completely and taking 1,000 more prisoners and 10 guns. The British losses throughout the day were 16 officers and 380 men.

At the battle of Marengo in 1800, Kellerman's charge, which had such a decisive influence on the battle, was made with 4 squadrons against the flank of the enemy's Infantry, who were hotly engaged in front with the French Infantry. It resulted in 5,000 picked troops laying down their arms.

The Peninsula war affords an excellent example of what can be done by the determined charge of a few squadrons. An action took place at Sierra Somo on November 30th, 1808, and is thus described by Napier. "Sixteen pieces of artillery planted in the neck of the pass swept the road along the whole ascent. At that moment Napoleon rode into the mouth of the pass. His Infantry were making no progress, and a thick fog mixed with smoke hung upon the ascent suddenly, as if by inspiration, he ordered the Polish Cavalry of his guard to charge up the causeway and seize the Spanish battery. The foremost ranks were levelled by the fire of the guns and the remainder thrown into confusion, but General Krazniski rallied them and covered by the smoke and moving vapour, led them sword in hand up the mountain. As they passed, the Spanish Infantry on each side fired and fled towards the summit of the causeway, then the Poles took the battery and the Spaniards, abandoning arms, ammunition and baggage, fled in strange disorder. It is almost incredible that a position nearly impregnable and defended by 12,000 men, should, from a deliberate sense of danger, be abandoned to the wild charge of a few squadrons, which 2 companies of good Infantry would have effectually stopped, yet some of the Spanish regiments so shamefully beaten here, had been victorious at Baylon a few months before."

In 1811, when Stewart led his brigade up the hill at Albuera, the French fire was found too destructive to be borne passively and the foremost troops charged, but heavy rain obscured the view and 4 regiments of French Hussars and Lancers galloped in from the right at the moment of advancing and two-thirds of the brigade went down.

At Salamanca in 1812, the British heavy brigade, consisting of 3 regiments under Le Marchant, charged a brigade of steady French Infantry formed in quarter column and posted in an open wood. The French reserved their fire with much coolness till the Cavalry came within 20 yards, and then poured it in on the concentrated mass of men and horses. The French Infantry were broken and dispersed;

the British loss throughout the whole day amounted to 4 officers and 94 men.

Borodino (1812), Leipsic (1813), Laon (1814), all afford examples of Cavalry successfully charging unbroke Infantry, and at Waterloo an entire division of French Infantry was dispersed by two regiments of British Dragoons, almost without firing a shot and leaving behind them 30 guns.

In the Russo-Turkish war of 1828, I can find no instances of Cavalry charging Infantry, and only one in the Hungarian war of 1848-49, *viz.*, at Babolna, when one of the Hungarian regiments formed square but was at once ridden over and destroyed by two squadrons of Cuirassiers who advanced to the charge without the assistance of Artillery.

At the battle of Aliwal in the Sikh war of 1846, the 16th Lancers rode down the Sikh Infantry; and in the Crimean war at the battle of Balaclava an overwhelming force of Artillery and Infantry fire failed altogether to check or stop the charge of disciplined Cavalry, although they had to advance $1\frac{1}{4}$ miles over ground as level as a parade-ground without any cover at all, and the Russians were posted on some low hills which run in the shape of a horseshoe. Out of 673 men, 247 were killed and wounded, and yet the charge was driven home. Whether the charge was justifiable or not, is entirely another matter.

I now come to the American war of Succession, which is always trotted forth as a *piece de resistance* to prove that mounted Infantry and not Cavalry is what modern conditions of war require. It is entirely overlooked that *neither* side had any real Cavalry, that in the time, and under the circumstances, it was impossible to make squadrons, capable of being handled as German and Austrian Cavalry now-a-days are, and that without precision and uniformity decisive results on the battlefield are unattainable. One instance, however, occurs to me when a charge was carried out, *viz.*, at the action at Front Royal, May 23rd, 1862.

It is described by the late Colonel Henderson as follows:—

"The leading squadron, keeping to the high road, was formed four abreast and the deep mass was wedged tightly between fences. The foremost files were mowed down by a volley at close range, and here for a moment the attack was checked. But the Virginians meant riding home; on either flank the supporting squadrons galloped swiftly forward, and up the road and across the fields swept their charging lines. In vain the Federal officers tried to deploy their companies. Kenly, calling on them to rally round the colours, was cut down with a dreadful wound. The grey troopers fell on them before they could fix bayonets or form a front, and sabre and revolver found an easy mark in the crowded masses of panic stricken Infantry. Hundreds laid down their arms and 250 Virginia horsemen, resolutely handled and charging at exactly the right moment, had the honour of bringing in as prisoners 600 Federals, who lost in addition 32 killed and 122 wounded. The confederate casualties were 11 killed and 15 wounded."

In the Italian campaign of 1866, at the battle of Custoza, 15 squadrons of Austrian Cavalry charged 2 Italian Infantry divisions,

rode over skirmishing line, broke through several squares and spread dismay to the rearmost troops. The result of this charge was that 25,000 Infantry were rendered incapable of taking part in the battle for the day. These results were obtained in the most difficult country in the world for Cavalry inclosed by walls, gardens, vineyards, etc., which frequently restricted movements to the roads. It is worthy of note also that the Italian rifle carried a substantial bone smashing bullet and was sighted to 1,200 yards, and further that the Infantry in squares stood 6 deep.

We now come to the France German war. At the battle of Worth, Michel's charge is generally quoted as an example to prove the futility of Cavalry attempting to charge unbroken Infantry armed with breech-loading weapons, but the circumstances under which it was carried out and the results obtained are often overlooked.

The Germans had just succeeded in taking Albrochtshansor and Morsbrunn on the French right and were preparing to envelop the enemy when Michel's brigade appeared. According to the Prussian official history: "The field of attack had apparently not been reconnoitred as the ground was extremely unfavourable for Cavalry, single lines of felled trees closed the ground above and deep ditches hindered the movement of closed masses;" and yet we read that "This chivalrous advance of the Cavalry had enabled the French Infantry of the extreme right wing to withdraw unmolested and take up another position, thereby postponing the decision of the battle for quite three hours." This advantage was obtained at a cost of some 700 men killed and wounded, and yet the charge was made in column under the most unfavourable conditions.

The charge of the French Cavalry under Margueritte at Sedan, is another example also often referred to. Colonel Maude after describing the action as related in the Prussian official history, sums up the case in the following words:—"The ground was intersected by banks and ditches and was decidedly unfavourable for Cavalry, the distance to be crossed was at least 1,000 yards. The Cavalry themselves had already suffered severely, there was no attempt at surprise for they were seen directly they left the cover of the woods and every available gun was turned on them, and finally the Germans were anything but demoralized. Yet for half an hour it is admitted—The course of the struggle defied description. That no advantage of this half hour's grace was taken by the rest of the army was no fault of the Cavalry, but had this charge been made to form the screen for an organized attempt to break out, and had the attempt succeeded, the Cavalry attack, instead of being counted as a failure, would have gone down to posterity as one of the finest examples of its employment in history."

The above examples are instances when Cavalry failed to break Infantry, although in each case they succeeded in getting home, but Rezonville puts quite a different complexion on affairs. Von Brodow with 6 squadrons, by charging the 6th French Corps consisting of 9 Batteries and 15 Battalions, saved the III Prussian corps and checked Canrobert's men for the rest of the day, at the cost of 16

officers and 363 men ; and on the same day the 1st Dragoons of the Guard, by charging the 4th French Corps, who were advancing in the full flush of anticipated victory, stopped their forward movement and saved the 38th Infantry brigade at a cost of 250 men.

And yet this is what the modern mounted Infantry enthusiast says about them. "The story of the charge of the Light Brigade will live for ever in English, as that of Bredow's brigade in German, and the name of the gallant Margueritte in French, but they accomplished little or nothing practically".—(*Finis Equi*).

Fancy Bredow's charge being considered as having accomplished little or nothing!

The next war of any importance was the Russo-Turkish war of 1877 and 1878, but from the outset there was visible a want of enterprise in the use of Cavalry generally, as well as a want of knowledge of what were the true spheres of its utility.—(*Clery*).

We now come to the Boer war, which is fresh in everyone's mind and which has afforded such a splendid argument for the mounted Infantry, and the cry that Cavalry charges are things of the past is repeated more persistently than ever.

It is entirely forgotten that the most essential thing for Cavalry is mobility, and that as regards mobility the Boers had the advantage of us. It is not my intention however, to do more than take a couple of extracts out of two of the innumerable "lessons" which have appeared at different times, and draw certain conclusions therefrom.

To begin with, I will take Colonel Pilcher's book. On page 16 he says:—"The Boers when galloped at, practically never stood, but fled when the advance was within 500 or 600 yards of them. The moral effect of this mode of attack was excellent, it taught my men to consider that nothing could hold them and imbued the enemy with the same feeling."

Now this was his *experience* when fighting against the best mounted Infantry that the world has ever seen. His men had no other weapons than their rifles, and yet the moral effect was so great that the enemy fled. Would not the moral effect have been ten times greater if in addition to a rifle the men had had lances or swords? But there is nothing new in this, it only confirms what history shows to have been the case in all ages. To my mind the most important lesson is to be learnt from the concluding sentence, "It taught my men to consider that nothing could hold them and imbued the enemy with the same feeling" and yet modern theorists would feign make us teach our men that every "Dago" with a "bundook" in his hand, can sweep them off the face of the earth if they attempt to get home with cold steel.

We will now turn to another "authority" writing under the initials "C. B." He says:—"Precisely that form of attack will succeed best which is least expected, hence *even the rush of mounted Squadrons may still inflict a decisive blow in a future battle against a foe who has the settled belief that such a form of attack is impossible and therefore does not look out for it.*" The expression "*even the rush of mounted Squadrons*" is particularly pleasing.

I will now give a short description of the action that took place near Hoenertsburg in 1901, as related to me by an officer who took part in it.

"General Grenfell's column, consisting entirely of mounted troops, strength about 2,000, were marching in pursuit of a commando of Boers, largely composed of the Transvaal Artillery Corps. The enemy were known to have at least 4 guns including one "Long Tom," and their strength was estimated at between 700 and 800 men. Across the line of march, stretched a long high ridge of rocky hills, the only way of crossing which, lay through a narrow pass, through which the entire force had to defile. The General Officer Commanding and his staff, at the head of the column had barely emerged from the other side, when a 96-lb shell struck the ground within 50 yards of them. The Boers were firing at a range of 9,000 yards and, considering the size of the target, it was a remarkable performance. The General ordered the troops to deploy as soon as they were clear of the defile, and then advance at a gallop. Owing to the nature of the ground a very wide extension was impossible, the troops on the flanks being in fairly close formation. The Boers were in position on a ridge of hills, the intervening ground was undulating, and the enemy knew the range of all the high ground that we had to cross. On reaching the last rise, it was found that a river lay between us and the enemy, after crossing which we should have to advance up a glaucis-like slope for 1,000 yards. By the time we had got over this river, the horses were almost done and a canter was the most that could be got out of them, but the Boers did not wait. They were obliged to leave the "Long Tom," but got away with the remainder of their guns. Throughout our long advance against the best Artillery corps that the Boers had, over open ground and, with a large river to cross within 1,000 yards of their position, our total casualties were 9." Where do all these "one war" theorists get their statistics from to prove that Cavalry cannot charge unbroken Infantry? I have gone through every campaign of note against civilized troops for the last 200 years in which Cavalry in masses were used, and I decline to acknowledge that it is a recognized fact that for many years past it has not been possible for Cavalry to act effectively against unbroken Infantry.

As General Hart says:—"When the long lines of Infantry become exhausted, demoralized and disorganized, and anxiously absorbed by what is passing in their front, *then* will be the time to charge them in flank, possibly in front and with as great effect as in former times. Such opportunities for the action of Cavalry in masses will undoubtedly occur. In the days of "Brown Bess," fire was opened at ranges so short that it was difficult to miss, and the heavy round bullet inflicted a more severe wound than little pellet of the Magazine Rifle." Has the increased range of the modern rifle materially affected the distance of the decisive zone? Lord Roberts himself says: "It is by snap shooting at the *closest ranges* that battles of the future will be won" and a writer in the June number of the United Service Magazine says: "Fire at much over 600 yards will not shake the morale of modern soldiery. The bullets are not thick enough, and cover from view and

fire is freely to be found. To whatever distance the rifle of tomorrow may reach, the decisive range will be limited by the same conditions as to-day and yesterday ; *vis.*, the field of fire and sight, and the resolution and training of the troops."

If this be so, how *apropos* is the following passage from Colonel Trench's "Cavalry in modern war" written 20 years ago. He says:—"It is much to be regretted that the manner in which the Cavalry has been handled in some recent campaigns, has done much to encourage the theory and belief that the day of Cavalry on the actual battlefield is virtually over. The real truth is, that to the end of time there will be emergencies when Cavalry which will charge home and sacrifice itself, may charge with effect, and it should never be allowed to forget that this is its ultimate *raison d'être*. There certainly is a risk that it may do so if the Cavalry is too often kept hovering round the fringe of operations and too carefully shielded from fire."

A great man's opinions are always entitled to respect, and if expressed regarding a subject in which he is thoroughly conversant, they would no doubt carry a very great deal of weight. But say for example, that Mr. Chamberlain suddenly propounded an entirely new system of naval tactics—would the fact of his being a great Statesman cause us to do away with all our battleships and rely in future solely on submarines? I think we should first require him to support his theory with irrefutable facts. Every man is entitled to hold what opinions he pleases, but when these opinions run counter to the teachings of history, he cannot expect his fellowmen to accept them as "acknowledged facts" without some very good reasons for doing so. Now Colonel Pilcher, I merely take him as an example, is no doubt a first rate soldier and did exceedingly well in the Boer war, but the command of the Bedfordshire regiment, service on the Niger and the command of a mounted Infantry column in South Africa, do not thereby qualify him to become an authority on the future tactics of Cavalry, as in neither instance has he had the opportunity of seeing regular Cavalry employed in masses, as undoubtedly they will be in the next European war. One of the most ardent advocates of mounted Infantry, and one of those who desire to relegate the sword and lance to the precincts of the museum, is the novelist, Conon Doyle. I hardly think he is quite qualified to be granted the post of Inspector General of Cavalry? When theory is allowed to run riot, it soon assumes the authority of "established principles." When iron-clads were in their infancy, the Russians were led away by the idea that all that was required were floating forts, and built numbers of vessels simply to fulfil this requirement. When theory had to be put into practice, these ships, called "Popoffs" after their inventor, were found to be worse than useless, and veritable death-traps. Before the Franco-German war, the French were so impressed by the results obtained on the range with their new machine gun, the Mittrailleuse, that they had no hesitation in saying that in the next war, whole battalions of the enemy would be swept away by it and Artillery never be able to come into action.

Before we proceed to throw over the teachings of past experience in favour of some modern idea, let us have something sound to go

upon. The arguments adduced against the feasibility of a Cavalry charge in the future are all of a negative character, that is to say, that because there have been no Cavalry charges since 1870, therefore there will never be any ever again.

In conclusion I earnestly commend the words of Marshal Marmont to all those who think with Lord Roberts that "instead of the firearm being an adjunct to the sword, the sword must henceforth be an adjunct to the rifle" and "that the improvement in firearms will give the victory to the side which can first dismount on ground less favourable to a charge than an open plain." They are as follows :—

"A troop should have its creed, its convictions, its faith, resulting from established principles and even from prejudices, immovably fixed in its affections, and care should be taken not to perplex the intelligence of the soldiers by inculcating conflicting opinions; gravely teaching them, when they are exercised as horsemen, that Cavalry must always triumph over Infantry, and again when drilling on foot arrives, that an effective Infantry is invincible by Cavalry. These lessons, when applied, *recur to their minds almost always inversely*; as foot soldiers they remember how Cavalry is to be dreaded, as horsemen they do not forget how fearful is Infantry."

P.S.—Since writing the above my attention has been drawn to an instance that occurred in the South African war, which, in the most striking manner confirms everything that I have said as regard the probable effect of a Cavalry charge against unbroken Infantry holding a defensive position.

If you will refer to the imaginary action that I endeavoured to describe as taking place in the Deccan, you will notice that I based my low estimate of the probable losses that would occur, on the following assumptions :—

- (1) that the defending Infantry would be subjected to a heavy Artillery fire which would prevent their leaving cover and would also strain their nerves to the utmost;
 - (2) that the rapidly approaching target would disconcert their aim;
 - (3) that in the short time available, no alteration of sights would be possible;
 - (4) that owing to the widely extended line of the attacking Cavalry, no concentration of fire would be possible;
 - (5) that as the whole of the defenders would be in the firing line, there would be no "depth" wherewith to stop the Cavalry;
- and as regards the *actual* losses the Cavalry would inflict, I have quoted several authorities to show that they would be infinitesimal, but that the results obtained by the *moral effect* would be probably much greater under present conditions than formerly.

I extract the following passage, verbatim, from the German official account of the South African war, merely changing into italics the points that I desire to draw particular attention to :—

"General French intended to continue his advance for the relief of Kimberley early on February 15th, in order if possible to reach

that town on the same evening, but the Boers had blocked the road during the night, a detachment, *about 900 strong with three Krupp guns*, having occupied the kopjes north of Klip Drift in a semi-circle about $2\frac{1}{2}$ miles in extent. Somewhere about the centre of the Boer position, there was a col from 1,200 to 1,300 yards wide which connected two neighbouring kopjes, and the ground sloped gently up from the river. This col was within effective range of the Boers ensconced on both the kopjes, the three Krupp guns being on the western hill.

After the 6th division had occupied the position on the heights between the two drifts, where the Cavalry had been, the latter assembled about 8-30. A.M. at Klip Drift. The patrols soon succeeded in ascertaining the strength and the extent of the enemy's position, because the Boers, contrary to their usual custom, opened fire on them at long range and so disclosed their whereabouts. In consequence of the reports sent in, French ordered his 7 batteries of Horse Artillery which were soon afterwards joined by two batteries of the sixth division and two 12-pr. naval guns, to come into action on the heights of the north bank. Supported by the fire of his guns, he intended to break through the centre of the enemy's position. *The artillery opened fire about 2,200 yards range, spreading it along the entire Boer position* and it soon succeeded in silencing the three hostile guns. *Simultaneously with the opening of the Artillery fire, the Infantry of the sixth division advanced north of the river against the Boers on the high ground.* The hour was just after 9 A.M.: French assembled his three Brigadiers—informed them of his intention and ordered Gordon's Brigade with its two batteries of Horse Artillery to form the first line—with 4 yards interval between each man, and to break through across the col in the direction of Kimberley. The second brigade under Broadwood was to follow in support in line, at 500 yards distance, while the first Brigade under Porter, together with the remaining 5 batteries of Horse Artillery which were to continue firing till the last possible moment, was to form the 3rd line.

The two leading brigades at once deployed and the horsemen—who were soon veiled in dense clouds of dust, dashed into the enemy's fire; the Divisional General riding at the head of the 2nd Brigade. The spectacle displayed to the eyes of the 6th Division was magnificent, every man held his breath, the moment was one of the most extreme tension, for it seemed as if the result of the bold attempt must be the utter destruction of the gallant riders. It had, however, already succeeded before the spectators were really able to appreciate the fact. After the dense clouds of dust caused by the 6,000 horses had somewhat dispersed, the three Brigades were seen to rally nearly a mile beyond the enemy's position, and the road to Kimberley was open. It was marvellous that the Division should have ridden almost without loss through the Boer fire; the casualties amounted to only one officer and 15 men, killed and wounded, together with about 20 horses. *The remarkably small loss is explained chiefly by the great rapidity of the manœuvre which completely surprised the adversary. The impression caused by the dashing mass of horsemen was such that some of the Boers took to flight before the*

Cavalry had approached within effective rifle range. Those of the enemy's who held their ground, fired for the most part too high in their excitement, especially as they had occupied, contrary to their usual custom, the summit of the heights and not their foot. The Cavalry too were enveloped in such dense clouds of dust, that they offered no certain target. The effective preparation and support of the attack by the Artillery contributed also greatly to its success, and one of the Boers present stated that "the fire from the English guns was such, that we were scarcely able to shoot at all at the advancing Cavalry." The main body of the Boers, leaving 15 killed and wounded, fled towards Magerfontein, and their terror was such that, by their exaggerated accounts, they communicated their dejected spirits to other burghers in laager. A number of Boers unable to get their horses in time had surrendered. A British officer described his impressions in the following language :—"The enterprise appeared to us at first as quite hopeless ; we believed that only a few of us would come out of it alive, and had we made a similar attack at Aldershot, we should certainly have all been put out of action and have been looked upon as idiots. When we had galloped about $\frac{1}{4}$ of a mile, we received a very hot frontal and flanking fire, and I looked along the ranks expecting to see the men falling in masses, but I saw no one come down, although the rifle fire was crackling all around us, the feeling was wonderfully exciting, just as in a good run to hounds."

This charge of French's Cavalry Division was one of the most remarkable phenomena of the war ; it was the first and last occasion during the entire campaign that Infantry was attacked by so large a body of Cavalry, and its staggering success shows that, in future wars, the charge of great masses of Cavalry will be by no means a hopeless undertaking, even against troops armed with modern rifles, although it must not be forgotten that there is a difference between charging strong Infantry in front, and breaking through small and isolated groups of skirmishers.

A PRÉCIS OF THE RUSSO-JAPANESE WAR.

BY MAJOR E. MONTAGU, SUFFOLK REGIMENT.

<i>Russia</i> —Population	...	...	130 millions.
" Armed men	...	...	4 "
<i>Japan</i> —Population	...	...	50 "
" Armed men	...	...	1 "

OBJECTS OF THE WAR.

The Russians are fighting for—

- (a) Possession of an ice-free harbour (Port Arthur) open to navigation at all seasons of the year, and control of the railway leading to it. Their other harbour in the Pacific (Vladivostok) is icebound for a part of the year.
- (b) Protectorate over Manchuria as one step towards obtaining preponderating military and commercial influence in China.
- (c) Control over Korea, whence she could always threaten Japan.

The Japanese are fighting for—

- (a) Control over Korea which is essential to her independence as a nation.
- (b) To oust Russia from the province of Manchuria, and hand it back to the Chinese.

This carries with it necessarily the—

- (c) Recovery of the fortress Port Arthur which Japan captured from China in 1894, and which she was unjustly compelled to evacuate by Russia, aided by Germany and France, Russia afterwards occupying Port Arthur herself.
- (d) To shut Russia off from the Pacific.

FORCES AT THEATRE OF WAR.

The Russians at the beginning of the war, February 9, seem to have had about 150,000 troops east of Lake Baikal, *vis.*—

Port Arthur	...	...	25,000
Vladivostok	...	...	20,000
River Yalu	...	...	10,000
Guarding Railway, sick, etc. ...	...	...	25,000

Total ... 80,000

leaving a field army about 70,000 strong. But if, as is calculated, reinforcements of 800 a day arrived by the single line of railway from Russia, they would have had a field army of about 150,000 by the middle of May.

The Mobilized Active Army of Japan, with its reserves numbers:—

7,900 Officers, 3,31,000 other ranks, 70,000 horses. Adding the depôt and territorial armies, the mobilizable force is 5,20,000 men, 1,01,000 horses, 1,368 guns.

Each Japanese Division consists of:—

Infantry 12,000 (4 Regiments of 3 Battalions each, 4 Companies in each Battalion).

Cavalry 500 (1 Regiment).

Artillery 36 guns, Engineers 700.

Transport 600, Medical Corps 700.

Ammunition Column 500.

Veterinary, Pontoon and Balloon Corps 1,000. 16,900 combatants and 5,500 coolies. Total 22,400.

It seems that by the middle of May, Japan must have had at the theatre of war about 250,000 troops to Russia's 150,000 (field army).

STRATEGY OF THE JAPANESE.

The strategical plan of the Japanese can now be clearly seen and may be divided into phases, the carrying out of each being dependent on the success of the previous one.

PHASE I.

To obtain "Command of the Sea."

This was secured (1) by the Naval night attack on Port Arthur on February 9th, by which the Russian fleet was reduced to comparative impotence, (2) by the effective blockade of Port Arthur kept up since then, (3) by the isolation of Russia's squadron at Vladivostok.

PHASE II.

The occupation of Upper Korea, and seizure of the line of the River Yalu.

This task was given to Japan's 1st Army under General Kuroki (Guards, 2nd and 12th Divisions). Originally the Japanese intended to land in South Korea at Masanpo, and work their way north, but by obtaining command of the sea at the outset she was able to land troops at Chemulpho (200 miles further north) instead, and indeed to secure this advantage she even risked sending transports with troops in to Chemulpho harbour when there were two Russian men of war actually in the harbour.

By seizure of the line of River Yalu on May 1st, the Japanese scored this strategical advantage that they threatened the centre of Russia's communications from Port Arthur to Harbin, and paralysed Russia's power of battle along the southern half of this line. The Russians at Mukden and Liaoyang, thus threatened by an army striking from the direction of River Yalu should never have risked detaching troops to relieve Port Arthur. By so doing they were fighting parallel (instead of perpendicularly) to their line of communications—one of the most dangerous operations in war, especially when in inferior force.

Russia *did* detach troops, apparently about 34,000 under General Stackelberg, and reaped the result most disastrously in the battle of Telissu, where she lost about 10,000 men.

PHASE III.

Japan's 2nd Army under General Oku (1st, 3rd, and 4th Divisions) was mobilised in Japan, but did not embark until the concentration of the 1st Army on River Yalu was complete. As soon as reports were received that the 1st Army was ready to attack the Russian position at River Yalu, the 2nd Army began to embark in Japan, and were all on board on April 22. The transports conveying them were then sent to the Hall Islands, which are equidistant from River Yalu and Port Arthur, to await there the result of the River Yalu battle. If the 1st Army had failed, the 2nd Army would have co-operated by landing near Takushan and attacking the Russia right flank on the River Yalu. If the 1st Army was successful, the 2nd Army was to act independently.

The 1st Army, being successful, and having defeated the Russians at River Yalu on May 1st, Admiral Togo on May 2nd sealed up Port Arthur harbour by sinking in the mouth of the harbour eight merchant ships, and returned to escort the transports of the 2nd Army on May 4th to Yentoa Bay and Pitzewo. On May 5th the 2nd Army landed, and on May 6th seized a line right across the Peninsular cutting the railway, and isolating Port Arthur from the other Russian forces.

PHASE IV.*

(a) The investment and attack of Port Arthur by the 4th Japanese Army under General Nogi (1st, 9th and 11th Divisions and Siege Train).

(b) Combined advance of following Japanese Armies against the line Niuchang-Mukden:—

Right—1st Army (General Kuroki) Guards 2nd 12th Divisions from River Yalu *via* Fenghwangcheng and Motienling on Liaoyang.

Centre—3rd Army (General Nodzu) 5th and 10th Divisions from Takushan *via* Siuyen on Haicheng.

Left—2nd Army (General Oku) 3rd, 4th and 6th Divisions from near Port Arthur *via* Wafangtien, Telissu, Wafeukau on Kaiping.

The above force must have consisted of some 200,000 men with several Cavalry Brigades, and a large body of Artillery. It seized all the passes through the Motienling range of mountains, and was evidently intended, by the advance of its right wing, to envelop and cut off the Russian field Army of about 100,000 men under General Kuropatkin, which was believed to be between Kaiping and Haicheng.

Field Marshal Marquis Oyama, with General Baron Kodama as Chief of the Staff was appointed to the Chief Command of the Japanese Armies in Manchuria.

* This distribution of Divisions (Phase IV) is according to the latest information obtainable.

PHASE V.

The advance of the Japanese 1st, 2nd and 3rd Armies northwards from Liaoyang.

Up to August 24th the strategical situation at the seat of war had not materially changed from that described above, except as regards Command of the Sea. But yet, though the combined movement of the Japanese armies was not yet fully developed, considerable progress had been made by the Japanese in each theatre of operations. (a) Manchuria, (b) Port Arthur, (c) The sea—with corresponding disadvantages to the Russians.

In (a) Manchuria.—The 3 Japanese Armies were still advancing north-west against the line Haicheng-Liaoyang-Mukden, with the object of cutting off the Russians from their Base. The Russian and Japanese forces, though scattered here over a front of some 70 miles, were nowhere more than two or three marches apart from each other. Kaiping had fallen into the hands of the Japanese after three days' fighting, also Niuchang with its harbour Yinkow, thus giving the Japanese a nearer and more convenient sea base of operations, and cutting off the Russians from their last communication with the sea in these parts. Haicheng was evacuated by the Russians on 2nd August. The battles of Motienling Pass (July 17th), Hsihoyen (July 18th and 19th), Tashihchiao (July 23rd and 24th), Tomucheng (July 30th and 31st), Yushulintzu (July 31st and August 1st), Yangtzuling (July 31st and August 1st) had all been fought and won by the 1st, 2nd, and 3rd Japanese Armies. The capture of Tashihchiao was important as being the railway junction for Port Arthur and Niuchang.

The Japanese 1st Army (General Kuroki) on the extreme right had been pushing forward its right down the River Taitse on Liachyang, and, if it had not been for the necessity of guarding against a heavy concentration of fresh Russian troops from Harbin and Mukden against the Japanese right flank with the danger of being attacked when isolated from the other Japanese armies, and defeated in detail, it seems probable that this movement against the Russian line of communications would have been much more pronounced than it was.

In (b) Port Arthur.—The Japanese had not, nor have they now (September 30th) captured the Fortress. The Russian Garrison is said to consist of the 3rd, 4th, and 7th East Siberian Brigades (=12 Regiments) with also 5 Regiments of the 2nd Siberian Brigade, 1 company Fortress Artillery, East Siberian Rifle Artillery Division, and Kwantung Sapper Company. Total about 23,000 men holding a line 12 to 14 miles long.

The Japanese land attack began on June 26th.

Actions are reported on June 26, 27 and 28; July 3, 4, 7, 10, 11, 26—30; August 1—3, 4, 5, 7—10, 14—16, 17, 21, 23, 24, 26—28, and September 2, 15—19.

The attacking force was reinforced on June 28th by the Japanese 6th Division (20,000 men), and 50 guns landed at Kerr Bay, raising the Japanese forces before Port Arthur to about 65,000 men and 242 guns. There have probably been since that date other unreported reinforcements. On July 28th a general assault began. On July 30th

the Japanese captured Wolf's Hill Fort (north of Port Arthur) with its outworks, and began mounting siege guns, whence and wherewith from 7th to 10th August, they bombarded the harbour, resulting on August 10th in the flight and destruction of the Russian Squadron at sea. Shantaoa Fort was captured by the Japanese on August 3rd, also Takushan and Liaokushan on August 9th. On August 16th, terms of capitulation were offered to the Russians which comprised the surrender of the Fortress and Fleet to the Japanese, the garrison however being allowed to march out with the honours of war, and join General Kuropatkin's Field Army near Liaoyang. These terms were refused. On August 17th the Japanese captured the Pigeon Bay positions and the old Chinese Arsenal $1\frac{1}{2}$ miles east of the town, and on August 18th—19th the Japanese made two desperate but unsuccessful attacks upon Fort Antsushan. On August 22nd the Japanese captured Fort Poyodo, midway between Takushan and the eastern defences, and from 26th—28th August a terrific bombardment took place, preparatory to the second general assault (August 27th—31st) which was repulsed everywhere, except at Palungching which was occupied. On the night of September 15th a severe bombardment took place, the Russians claiming to have repulsed two attacks on the redoubt protecting the water-works. Another general assault, lasting 50 hours, is reported on September 19th, the Japanese capturing 2 or 3 supplementary Forts near Keekwan-shan. On 25th September the Japanese are further reported to have captured since 19th September, 6 Forts in the 2nd line of defence.

The Russians admit to losing 1,000 men on July 7th, and about 5,000 men from 27th—31st August, but no other reliable casualty returns have been made public.

The fall of Port Arthur would set free some 65,000 Japanese and 240 guns, more or less, for the big operations against the Russians at Liaoyang-Mukden further north.

IN (c) NAVAL OPERATIONS.

The attempts of the Russian Squadron to escape from Port Arthur harbour, with the object of joining the Vladivostok Squadron, on June 22nd and 23rd and finally on August 10th have resulted in the almost total destruction of its fighting power. The latter attempt was hastened by the Siege gun fire which the Japanese brought to bear on the harbour after their capture of Wolf's Hill Fort on July 30th. Of the 6 Russian Battleships, 4 Cruisers, 8 Destroyers (and 1 Hospital ship) that were attacked by the Japanese Squadron consisting of 6 Battleships, 11 Cruisers, and 17 (afterwards 30) Torpedo craft, only 5 Russian Battleships, 1 Cruiser, the Hospital ship, and 3 Destroyers escaped: these had to put back in a severely damaged state to Port Arthur, with a casualty roll of 38 killed, 307 wounded. The rest of the Russian ships were all sunk or disarmed in neutral harbours. On this occasion the Japanese waited till the Russian ships were 30 miles south of Port Arthur and began their attack at 1 P.M., their Battleships and Cruisers only being brought into the fight at first. They constantly manœuvred so as to have the sun behind their own ships, thus making better targets of the Russian ships. The latter tried to break through the Japanese line at its weakest

point, darkness at 8-30 P.M. coming to their rescue. None of the Japanese ships were put out of the action. Total Japanese losses 61 killed, 124 wounded. On August 16th the remnants of the Russian Squadron made another attempt (or feint) to leave Port Arthur, but were driven back.

The Vladivostok Russian Squadron has made 4 sorties from Vladivostok.

(a) In April, sinking the Japanese ship *Kinshin Maru* off Gensan on east coast of Korea. A heavy fog alone saved the Russians from attack by the Japanese Squadron under Admiral Kamimura.

(b) About 15th June, after steaming 600 miles from Vladivostok to the vicinity (westwards) of Moji, in straits of Shimonoseki, where, within 50 miles of the Japanese coast, it sank the Transports *Isumi Maru* and *Hitachi Maru*. About 753 out of 900 Japanese soldiers were drowned, the Russians not attempting to save them. Again a fog alone saved the Russians from attack by the Japanese Squadron.

(c) Towards end of July into Pacific Ocean, where it damaged, captured and sank merchant shipping only, and was reported back at Vladivostok on 5th August.

(d) On 16th August the Vladivostok Squadron, 3 Cruisers (*Gromoboi*, *Rossia* and *Rurik*) was sighted near Tsushima island in Straits of Shimonoseki, steaming south 6 miles away at 5 A.M., by the Japanese Squadron, under Admiral Kamimura, composed of 4 Cruisers, reinforced afterwards to 6 Cruisers. The Japanese, to avoid observation and prevent escape of the Russian ships, steamed across the Russian rear, but were observed at 5-20 A.M. range 8,750 yards. Fighting began at once and lasted 5 hours, all the Russian ships bursting into flames. The *Rurik's* steering gear was soon injured, and after receiving a concentrated fire at 4,500—5,500 yards she sank, the Japanese saving 608 of her crew. The *Gromoboi* and *Rossia* fled north and escaped severely damaged, after a 2 hours running fight, to Vladivostok with half their officers and a quarter of their men killed and wounded.

Casualties—Russian, 155 killed, 307 wounded.

Japanese, 45 killed, 68 wounded.

COMMAND OF THE SEA.

The following detail gives the strength of the *Russian fleet* at the beginning of the war, and the damages that have been officially reported.

7 Battleships (1 sunk, 1 disarmed, 5 seriously damaged).

10 armoured and protected Cruisers (3 sunk, 1 destroyed, 2 disarmed, 4 seriously damaged).

10 Torpedo boat Destroyers (1 captured, 4 disarmed, 1 blown up, 4 damaged).

12 Torpedo boats (no information) also some 3 or 4 unprotected Cruisers and some Gunboats.

A reinforcing fleet from the Baltic has been reported several times as about to start for the seat of war, but at present is still in the Baltic.

The *Japanese fleet* at the beginning of the war consisted of 7 Battleships, 13 armoured and protected Cruisers, 19 Torpedo-boat Destroyers, 60 Torpedo boats, also 14 old armoured ships, and weaker

Cruisers. Of the above, 2 Battleships, 2 unprotected Cruisers and some Torpedo Craft have been sunk, others have been damaged, but evidently not enough to impair their efficiency.

Admiral Kamimura's orders throughout the war have been to watch with his Squadron the Straits between Japan and Korea, in order to prevent any junction between the 2 Russian Squadrons at Port Arthur and Vladivostok. He has done so successfully to date. The Japanese have therefore Command of the Sea more securely now than at any time since the beginning of the war, and the Russians can no longer be considered to have a "Fleet in being" in these waters. Up to date (September 30th) the Japanese are still maintaining all the advantages of the situation both on sea and land. Not only have both squadrons of the Russian Fleet been heavily defeated with every battleship and cruiser disarmed, seriously damaged, or sunk, but also the Japanese Armies in Manchuria remain concentrated for action and have been consistently victorious, whereas the Russians have experienced nothing but defeat and retreat. It is only at Port Arthur that the two forces, besieged and besiegers, seem to be on equal terms.

However the Japanese victories at and round Liaoyang have not led to the decisive results anticipated, *viz*, the envelopment and annihilation or capture of the entire Russian forces concentrated at Liaoyang under General Kuropatkin, and in consequence the temporary end of the war in those parts. Whether these same Russian troops, so often defeated, can be brought to stand up resolutely against the Japanese again has yet to be seen. The difficult operation of withdrawing from action an Army of between 120,000, and 160,000 men, actually in contact with a very aggressive enemy and of crossing a river (River Taitse) in his rear, was carried out successfully by General Kuropatkin, though with a loss of over 23,000 men. The Russian Army was saved from ruin by the stubborn rear guard action of the Russian Rear guard facing the Japanese 2nd and 3rd Armies south of Liaoyang and River Taitse, and by the Russian Flank guard facing General Kuroki north of River Taitse. It seems that the Japanese forces actually engaged in turning the Russians out of their immensely strong entrenched positions at Liaoyang, were indeed numerically weaker than the Russians. The objective of the 1st, 2nd, and 3rd Japanese Armies continues to be the destruction of the Russian Field Army, and it remains to be seen how far north they will pursue the Russians to effect this. Meanwhile the said Russian Field Army has been reinforced by some 30,000 men, drawn from the Vladivostok Garrison and by the daily Troop-train service from Russia.

This hurried retirement of the Russians and abandonment of their advanced base of operations (Liaoyang) was brought about (a) by the Japanese victories of Tomucheng, Yushulintzu, and Yangtzu-ling (July 30—31 and August 1) which resulted in the Japanese gaining 10 miles in their advance on Liaoyang: (b) by the battle of Anping August 26) and action of Anshanchan (same day), whereby the 3 Japanese Armies were brought up into line with one another, forming a semicircle round and threatening Liaoyang from east, south, and west: (c) by the forcing back of the Russians on August 28th—29th across the plain south of Liaoyang, on to the Liaoyang defensive positions: (d) by the fierce battle August 30th—September 3rd

all along the line, whereby the Russian Right and Centre were forced in, the Japanese 1st Army having in the meantime (September 1 and 2) crossed River Taitse, thus turning the Russian left flank, and threatening to cut off the Russian retreat on Mukden.

It is estimated that some 400,000 men and 1,200 guns, including both sides, were in action, and that the losses on these nine or ten days amounted to about 23,000 Russians and 17,500 Japanese. The Russians managed to accomplish successfully the most dangerous operation of retiring northwards across the front of the Japanese 1st Army, which advanced north-west against the line Lianyungang-Mukden, that being the only possible Russian line of retreat.

The Russian field Army is now (September 24th) said to be concentrated at and round, or north of, Mukden, whilst the Japanese are preparing for their next advance northwards.

The total casualties of the war to date are estimated to be somewhat as follows—Russians 70,000 and 131 guns. Japanese 30,000.

This refers to land operations only, and is exclusive of casualties at Port Arthur.

CALENDAR OF WAR.

January 5.—Japanese prohibited publication of Military and Naval movements.

February 8.—Japanese landed troops at Chemulpho, Korea.

THE WAR NOW COMMENCED WITHOUT ANY FORMAL DECLARATION OF WAR.

February 9.—Japanese night torpedo attack on Russian fleet at Port Arthur. 3 Russian ships torpedoed.

Japanese sunk 2 Russian men of war (*Variag* and *Koreits*) at Chemulpho.

February 14.—Japanese torpedo attack on Russian fleet at Port Arthur.

February 28.—First land fight at Ping Yang, Northern Korea (a skirmish only).

Japanese Bombardments of Port Arthur :—

February 9.

March 9.

March 10.

March 22.

Japanese attempts to block Port Arthur :—

February 23.

March 27.

May 23.

March 1st.—Transport of Guards and 2nd Division by sea began, the 12th Division having already occupied Seoul. The above troops formed the Japanese 1st Army under General Kuroki.

May 1st.—BATTLE OF RIVER YALU, also called the BATTLE OF KIULIENCHENG.**JAPANESE.**

General Kuroki,
1st Army
(about 58,000 men).

{ Imperial Guard Division.
2nd Division.
12th Division.
101 guns.

RUSSIANS.

General Sassulitch
(about 21,000 men).

{ 3rd Division.
3 of 6th Division.
Cavalry Division.
50 guns, 8 mach. guns.

The Russians, with about 10 battalions and 42 guns in the firing line occupied the western banks of the Rivers Yalu and Ai, from Antung northwards, to about Seechong, a position about 11 miles in extent, their centre being at Kiuliencheng, and their main reserves, 5 Battalions and 1 Battery, about 4 miles north-west of Antung. It was a very extended position for the force and without depth.

The Russian position had in front of it the River Yalu from Antung to Wiju, and its tributary the River Ai from Wiju circling North West towards Seechong. Each of these rivers had numerous tributaries in addition to the main streams, all of which an attacking force had to bridge or ford. After careful reconnaissances, Japanese covering parties established themselves on 26th-28th April on the left bank of the River Yalu; 10 bridges were made, some of them under fire, and also pontoon ferries for the artillery.

On April 30th the Japanese 12th Division crossed River Yalu 8 miles up stream from Wiju, and advancing thence north-west, established itself on the east bank of River Ai, thus gaining a position equidistant with the Guards and 2nd Divisions from the Russian position, but separated temporarily from the rest of the Japanese Army by the River Yalu. In the meantime, Japanese gun-boats demonstrated against the Russian right at Antung.

On May 1st the three Japanese Divisions, 12th Division (right attack) Guards Division (centre) 2nd Division (left attack) crossed the rivers and, supported by an overwhelming artillery fire, drove the Russians from their position, the 12th Division enveloping the Russian left flank. Five Battalions and five Squadrons formed the Japanese reserve. A general pursuit followed towards Feng-Hwang Cheng.

Losses:—

Japanese.—About 900 men.

Russians.—70 Officers, 2,327 men, 21 guns, 8 maxims, 1,000 rifles and 35,000 rounds ball ammunition.

May 6th.—Japanese 1st Army having defeated Russian Army at River Yalu, occupied Feng-Hwang-Cheng.

The Japanese 2nd Army (General Oku) landed at Pitszewo, opposite Elliot Islands, about 75 miles north-east of Port Arthur on May 5th and is commanded by General Oku. It consisted of the 1st, 3rd and 4th Divisions.

The Japanese 3rd Army (General Nodzu) consists of the 5th, and 10th and landed at Takushau.

The Japanese 4th Army (General Nogi) has undertaken the attack on Port Arthur, and landed at Talienwan Bay.

May 26th. BATTLE OF NANSHAN (also called *BATTLE OF KINCHAU*).

Japanese.
General Oku
(about 40,000 men)

Russians.
General Stossel,
(8,000 to 10,000 men).

{	Right—4th Division. Centre—1st Division. Left—3rd Division. 120 guns. 4 gunboats 6 torpedo boats	{	in Kinchau Bay.
{	3rd, 4th, 5th, 12th, 13th, 14th, 16th Regiments of Infantry (= 3rds of Port Arthur Garrison). 70 guns, 8 mach. guns 2 Field Batteries.	}	

This remarkable and sanguinary battle was fought by the Japanese and 2nd Army to force a way into the Kwantung peninsular so as to attack Port Arthur. The neck of the Peninsular is about three miles across, with the hill of Nanshan in the middle. The Russians facing North, held this strongly fortified position, studded with heavy artillery and surrounded by several lines of shelter trenches, below which were barbed wire fences and mines.

The Japanese commenced their attack at 2-35 a. m. (middle of night), and owing to the narrowness of the neck of land, had to contract their front to half normal extension. The fourth Division had even to stand waiting breast deep in the sea.

The attack was necessarily frontal, except for enfilade fire from their ships in Kinchau Bay. Attack after attack failed. The Japanese artillery tried in vain to make a practical avenue through the obstacles. Finally, after about nine charges and complete failure of the centre and left to penetrate the Russian position, the right wing (4th Division) forced its way in and the Russians had to retreat, abandoning all their artillery, and with losses as below. Had not the Japanese discovered by accident, and cut the electric wires which would have fired the mines, their losses would have been still more enormous.

This battle is one of the most severe battles of modern times and is a proof of the splendid fighting qualities of the Japanese soldiers (our allies).

Losses :—

Japanese ...	{ killed 33 officers, 716 men wounded 100 „ 3,355 „ }	Total 4,204.
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Russians. Killed 30 officers and 800 men, 78 guns.

May 30th.—Japanese, as result of battle of Nanshan, occupied Dalny, capturing much railway rolling stock.

May 30th.—First action at Wafengkau (50 miles north-west of Kinchau). This action was apparently fought by a detached force of Japanese 2nd Army (strength 8 companies 8 squadrons, and 4 maxim guns) to prevent the Russians from interfering with the Japanese advance south by Kinchau.

Losses :—Japanese 63. Russians 40.

The Russians retreated north.

June 8th.—Japanese 1st and 3rd Armies drove Russians (strength 4,000 and 6 guns) towards Kaiping and occupied Siuyen. Siuyen is 40 miles from Kaiping, and 45 miles from Haicheng. It controls the roads to both and therefore is of great strategic importance.

June 11th.—Russia reverse 8 miles South of Niuchang. The Japanese being attacked made a false retreat, and then fell on Russian flank. Russian loss 800.

June 14th.—Japanese reported fortifying Feng-Hwang-Cheng strongly. Feng-Hwang-Cheng is on lines of communication of 1st Army.

June 15th.—**BATTLE OF TELISSU** (also called **BATTLE OF WAFENKAU**).

Japanese 2nd Army, { 3rd, 4th (and probably 6th) Divisions.
General Oku. { Cavalry Brigade. Probably 200 guns.

Russians. General }
Stackelberg, (about 35,000 men) } 32 Battalions. Cavalry Brigade. 98 guns.

The Japanese 2nd Army advanced North on a front of 20 miles on June 13th, in 3 columns on either side of the railway, its Cavalry being on extreme right, and on June 14th found the Russians holding a defensive position about 8 miles in extent, strongly fortified and facing south, astride the railway, about 4 miles south of Telissu, and bombarded the position for 2 hours.

During the night and early the following morning the Japanese right and left wings circled round both flanks and rear of the Russians and very nearly surrounded them. The Russians were heavily reinforced by rail and turned Japanese right flank. The Japanese threw in all their Reserves and Cavalry on their right (i.e. on the Russian left and rear.) Finally the Russians, who had had to divert their Reserves from their left to their centre, were thoroughly defeated and narrowly escaped annihilation. They lost about 10,000 men out of about 35,000.

A Division was ordered out from the 1st Japanese Army to cut off their retreat, but just failed to arrive in time to do so.

Losses—

Japanese ... { officers killed 7, wounded 43 } Total 1,163.
men killed 210 " 903

Russians ... { about 10,000 (nearly $\frac{1}{2}$ of their force) also 14
guns, 1 colour and 800 prisoners.

June 15th.—Russian Squadron from Vladivostok torpedoed and sunk the Japanese transport Hitachi Maru and Izumi Maru off East Coast of Korea. Almost all the Japanese combatants on board refused to surrender and went down with their ship fighting.

June 22nd and 23rd.—In spite of the 18 merchant ships sunk by the Japanese to block the entrance of Port Arthur Harbour, 6 Russian battleships, 5 Cruisers and 14 Destroyers emerged and manœuvred. Declining a battle however, they returned and anchored outside the

harbour, and were attacked at nightfall and all night (8 times) by the Japanese torpedo flotillas. Result, at least 3 Russian men of war damaged.

June 25th.—2nd Japanese Army captured Kaiping after severe fighting.

June 26th.—Japanese began attack on Port Arthur.

June 26th.—Japanese extreme right flank, composed of 12th Division (1st Army) and a Cavalry Brigade was at Suimatse, probably with the object of descending the valley of River Taitse and debouching north of Liaoyang.

SEIZURE of the PASSES through the MOTIENLING range of mountains.

June 26th and 27th.—ACTION OF FENSHUILING PASS, (Motienling Range).

Russians.—14 Battalions Infantry, 3 Regiments Cavalry, 30 Guns.

Japanese.—Part of 3rd Army.

Japanese attacked before dawn on 26th, and fought till dusk, then bivouacked, and recommenced attack in three columns at midnight. Two of these columns detoured to attack Russian right flank and right rear, whilst a reserve detachment routed 2,000 Russian Cavalry and Infantry at Winchapentsu. On 27th Artillery duel began 5 A.M., Japanese columns converged and captured Pass at 11 a.m.

In afternoon of the same day the Russians, strength 3 Battalions and 16 guns, tried to recapture the Pass but were repulsed.

Losses:—

Russians.—88 prisoners and at least 90 killed.

Japanese.—180.

June 26th and 27th.—ACTION OF TALING PASS.

Russians.—5 Battalions and 16 Guns.

Japanese.—1 Division Infantry, 3 Batteries Artillery.

Russians defeated. Pass occupied by Japanese.

June 26th and 27th.—ACTION OF MOTIENLING PASS.

Russians defeated, Pass captured by Japanese 2nd Army.

The front of the 1st and 3rd Armies had now contracted from 60 to 40 miles, but the total front of the 1st, 3rd, and 2nd Armies would be about 150 miles.

Except at Port Arthur, there is now no considerable body of Russians south of the line, Kaiping-Siuyen-Fenghwangchen—River Yalu.

June 27th and 29th.—Japanese 1st Army captured all important defiles on the two roads from Motienling to Liaoyang.

July 1st and 3rd.—Japanese 1st Army pushed on to immediate east of Liaoyang.

July 4th and 5th.—Russians (2 Battalions and 50 Cossacks) during fog attacked Japanese to recover Motienling Pass; Russians charged three times.

Losses:—Russians 80. Japanese 43.

July 6th.—Field Marshal Marquis Oyama left Tokio to command the Japanese Armies in Manchuria.

July 9th.—Japanese 2nd Army (General Oku) after actions from 6th to 9th July occupied Kaiping, driving north about 20,000 Russians

(1 Division and 1 Cavalry Brigade). The Japanese 3rd Army was in the vicinity on the Russian left flank, and its presence may have accelerated the Russian retirement, but it took no part in the action of Kaiping.

July 9th and 10th.—Japanese 3rd Army (General Nodzu), advancing north-west from Siuyen, fought series of small successful actions.

July 10th.—Japanese 2nd and 3rd Armies were concentrating for action on a front of 25 miles, *i.e.*, from a point on railway 10 miles south-west of Tashihchiao, to Tomucheng, within easy supporting distance of each other, and within striking distance of the Russian army in their front.

July 13th.—Japanese 2nd Army (General Oku) 50,000 strong, reported to be advancing rapidly between Niuchang and Tashihchiao.

July 17th.—**BATTLE OF MOTIENLING PASS.**

Russians. { 18 Battalions (9th Division and 2 Battalions),
General Keller, { also enumerated as 2 Divisions drawn from
20,000 men. { 3rd, 6th, and 9th Divisions.
Some guns.

Japanese ... { 1 Brigade infantry and 1 Battalion (of 2nd Division 1st Army)

Losses :—

Russians ... about 2,000.

Japanese ... 43 killed, 256 wounded.

July 18th and 19th.—**BATTLE OF HSIHOYEN**, (also called **BATTLE OF KIAOTUNG**, and **BATTLE OF CHANTAU**), (on Motiening—Liaoyang Road).

Russians. { 7 Battalions Infantry, (34th and 36th Regiments.)
{ 1 Regiment Cavalry.
{ 32 Guns.

Japanese—12th Division (1st Army).

The Russians had here some of the 10th Army Corps from Russia and occupied a strong entrenched and elevated position their left flank resting on River Chi, and their right flank on a precipitous hill. After two days' fighting, the Japanese by frontal and flank attacks drove the Russians from the position, with losses as stated below. To turn the Russian right flank, a Japanese column made a turning movement of 16 miles over precipitous country in great heat. In this action, the Japanese used much more extended formations than they had hitherto done.

Losses :—

Russians ... over 1,000, 47 prisoners, 131 killed.

Japanese ... 72 killed, 551 wounded.

The control of River Taitse valley fell to the Japanese as the result of this battle.

July 23rd and 24th. **BATTLE OF TASHIHCHIAO.** (7 miles south of Tachihchiao) Tashihchiao is midway between Kaiping and Haicheng.

<i>Russians.</i>	{	1st, 2nd, 9th and 35th Divisions with part of Siberian Reserves, totaling about—
General Zarubaieff,		48 Battalions.
about 60,000 men.		50 Squadrons.
		105 Guns.
<i>Japanese.</i>	{	
2nd Army.		4 Divisions Infantry, overwhelming force of Artillery.
General Oku,		
about 60,000 men.		

The Russians occupied an entrenched position of 25 miles in extent from east to west, (Erhlauhotzu to Niushinhan) of which 10 miles had been strongly entrenched, with their Cavalry on their right, and their Artillery on 4 commanding heights. Tapingling was the key of the position and commanded all the vicinity.

On July 23rd, the Japanese who formed for attack on a line about 23 miles in extent, (Hsiatangchih to Hwangliangtiu) drove in the Russian outposts, and on July 24th the main attack against the Russian left defence began at 9 A.M., but was driven back by a counter attack and had to come to a standstill till nightfall, the ground being unfavourable to the Japanese Artillery. At 10 P.M. the Japanese carried the 1st position (left defence) of the Russians, and their 2nd position at 3 A.M. The Russians, their left being defeated and their right consequently *en l'air* retired, and the Japanese pursued them through and to the north of Tashihchiao.

The chief feature of this battle was the night attack on a large scale, especially round the fortifications on Tapingling (on Russian left), which was the key of the position, and 3 miles from Tashihchiao. The Japanese 3rd Army (General Nodzu) was in the vicinity on the Russian left flank, but took no part in the battle.

The loss of this battle forced the Russians to withdraw from Niuchang and Yingkow (the port of Niuchang 30 miles from Niuchang), thus giving the Japanese an advanced base of operations both on the sea and on the line of railway.

Losses—

Russians ... over 2,000.

Japanese ... 147 killed, 925 wounded,

July 25th.—Japanese occupied Niuchang and Yingkow.

July 28th.—Artillery duel at Haicheng

July 30th and 31st. BATTLE OF TOMUCHENG—(= Simu-cheng).

15 miles south-east of Haicheng.

Russians.

Alexeieff.

about 75,000 men.

Japanese

General Nodzu.

{ 5th Siberian Division.

{ 1 other Division.

{ 7 batteries (60 guns.)

{ Part of 3rd Army.

The Russians occupied a strongly entrenched position extending from Hungyaoling to Sanchiaoshan, which had been prepared for months. Commencing on 30th July, the battle continued all next day (31st July). The Japanese main attack was made by their left,

against the Russians right. Both sides being heavily reinforced, the Russian right at 5-30 P.M., made a strong counter attack supported by Artillery, but was repulsed. Finally, the Japanese left penetrated the Russian position and threatened the rear of the Russian main body, causing the Russian to retreat at night-fall northwards on Haicheng.

Losses:—

Russians ... 29 officers and over 1,000 men, and 6 guns.

Japanese ... killed 194, wounded 666.

July 31st and August 1st. (a) BATTLE OF YUSHULINTZU (4 miles west of Hsihoyen and 25 miles from Liaoyang).

Russians ... { 1 Brigade 9th Division.
Main part of 31st and 35th Divisions.
4 Batteries.

Japanese ... Part of 1st Army.

The Japanese attacked all 30th July and drove in both flanks of the Russians; resuming the attack on August 1st at daybreak, they routed the Russians at noon, and pursued them 4 miles westwards towards Anping.

At Pyrenling, 5 miles south of Yushulintzu, 3 Japanese regiments and 4 guns enfiladed the whole Russian line at 200—1,000 yards.

(b) BATTLE OF YANGTZULING.—(6 miles west of Motienling, and 25 miles from Liaoyang).

Russians ... { 2½ Divisions, (3rd and 6th Divisions and
1 Brigade of 9th Division).
4 Batteries Artillery.

Japanese ... Part of 1st Army.

The Japanese attacked all 30th July, and carried enemy's principal position, but only at 8 A.M. on August 1st, were the Russians completely routed. In these two actions, the whole of the 10th Army Corps, half the 17th Army Corps and two Divisions of east Siberian troops were defeated, thus all the Russian troops had now experienced the demoralisation of defeat. Result—Japanese gained 10 miles in their advance towards Liaoyang.

In these actions, the Japanese could find no suitable positions for their Artillery. Temperature 100 Fahrenheit.

Losses in above two battles:—

Russians ... { at least 2,000, also 8 officers.
260 men and 2 guns captured.

Japanese ... 946 including 40 officers.

August 2.—Russian evacuated Haicheng, as result of the actions of 30th, 31st July and 1st August, and retired to Anshanshan.

August 10.—Japanese 1st Army attempted and failed to cross River Taitse at Penhsihu and Micha.

Reported that 30,000 to 50,000 Russians under General Linevitch are ordered to move from Vladivostok to join General Kuropatkin's field army.

August 11.—Japanese 1st Army reported to be bridging River Taitse at Penhsihu and Micha.

Estimate of Rival Forces in Manchuria on 16th August:—

Russian Field army ... 132,000 men, and over 400 guns.

Japanese ... 220,000 men, and 600 guns.

[38USI]

Estimate of losses up to 16th August—

Russians	...	{ 32,500 killed and wounded.
		{ 113 guns, and 18 maxims captured.
Japanese	...	1,200 men.

August 21.—Russians report that 30,000 Japanese with 200 guns are moving north in two columns from Yinkow towards Haicheng, and a third column moving north on west of Railway.

August 24.—1st Japanese Army (General Kuroki) resumed general advance. 2nd and 3rd Japanese Armies also continuously engaged, fighting their way northwards about 23 miles south and south east of Liaoyang.

August 25, 26, 27. BATTLE OF ANPING and ACTION OF ANSHANCHAN.

At Anping the Russians, strength about 13 Divisions (65 Battalions and 120 guns), occupied strong position on steep mountain ranges, 23 miles south-east of Liaoyang. On August 25th the Japanese 1st Army (General Kuroki) divided into 3 columns, commenced its attack, capturing by bayonet charges at night, the centre of the Russian position. On August 26th the Japanese resumed the attack and at night carried the enemy's left, capturing 8 guns. On August 27th the Japanese had driven the Russians entirely out of the position.

At Anshanshan the Russians evacuated their position after one day's fighting, owing to the Japanese advance on the east, being pursued by the Japanese 2nd Army, and losing 300 men and 8 guns.

Losses :—

Japanese 1st Army, 24—28 August 2,225 men.

Russians reported to be 1450 men and 16 guns.

BATTLE OF LIAOYANG.

Russians	{ About 184 Battalions Infantry.
(General Kuropatkin).	{ " 128 Squadrons Cavalry
	{ " 572 Guns.
Japanese	{ Right 1st Army (General Kuroki).
(Field Marshal Oyama.)	{ Centre 3rd " (General Nodzu).
	{ Left 2nd " (General Oku).

August 28—September 3.—Liaoyang, until the recent defeat of the Russians, was the main base of the Russian Manchurian Army, a depot for all military stores, and a fortified position of extreme importance to the Russians. The town has a population of 80 000 inhabitants, and is surrounded by a wall 15 feet thick. The River Taitse, 200—250 yards wide with high banks, flows east to west, just north of the town, the railway crossing the river almost at right angles and running approximately north to Mukden and South to Port Arthur. It is also the junction of the Pekin and Mukden roads.

The Russian Army was almost entirely concentrated at and about Liaoyang, and disposed in a semi-circle 12 to 20 miles distant from the town, its line parallel to, and at a distance of 3 or 4 miles from the Japanese front. Its southern advanced post at Anshanshan and eastern advanced post at Lantzushan, were apparently held in great strength. The Liaoyang fortified camp formed the centre of the Russian position and protected both the railway and road bridges over River Taitse and also the military pontoon bridges which had been constructed. The dispositions of the Russians at Liaoyang thus formed a Bridge Head, securing their line of retreat across the river, their

flanks resting on the river, some 7 miles above and 15 miles below Liaoyang.

The Japanese 3 Armies had, as has been shown, assumed a concentric offensive, advancing from the east, south-east, south and south-west, and on August 24, 25, 26 and 27 had forced back the Russians from Anping and Anshanchan. On August 28th the Russians, fighting Infantry and Artillery rearguard actions, retired northwards across the plain south of Liaoyang, finally taking up a position extending east and west from a point 6 miles south of Liaoyang. On August 29th the fighting was cautious and restrained, the Japanese 1st army occupying a position 9 miles south-east of Liaoyang on left bank of River Taitse. On August 30th the general attack began all along the line and continued till September 3rd. Some 400,000 men and about 1,200 guns, including both sides, are reported to have been engaged, the main Japanese attack being directed against the Russian right and centre, *i.e.*, from the south-west and south. Fighting was temporarily suspended at midnight on 31st August, and General Kuropatkin is stated to have then ordered retirement on the main works round Liaoyang, owing to the report that the Japanese 1st Army was preparing to cross River Taitse at dawn. On September 1st the Japanese 2nd Army made a fierce and daring assault against the Russian right, causing its retreat with the Japanese in pursuit. On September 2nd the Japanese 2nd Army began pressing the Russians towards River Taitse, and the retreat of the Russians right and centre involved the whole Russian Army in the retreat north across the river. On the same day (September 2nd) the whole of the Japanese 1st Army crossed River Taitse (1 mixed Division crossed on 1st September) and marching north-west, forced back the Russian Force under General Orloff which had advanced from Yentai to attack it. On September 3rd and 4th a furious attack on the Russians was delivered by the Japanese 1st Army (General Kuroki), and on September 4th the Japanese occupied Liaoyang.

Losses during above operations round Liaoyang.

Russian.	{	over 23,000 men, 3,588 rifles, 1,638,730 rounds ball ammunition, 10,056 shells, 1,269 ammunition carts, 6,400 great coats, and quantities of entrenching tools, provisions, materials for light railways, etc.
	{	1st Army 4,866 men,
		2nd " 7,681 "
		3rd " 4,992 "
Japanese.	{	Total 17,539 men including 136 officers killed and 464 officers wounded.

September 5.—Heavy fighting reported north-east of Yentai, the Japanese pressing north along ridges east of railway, and shelling the Russians in their retreat on Mukden.

September 7.—Russians report their Army concentrated round Mukden.

September 17.—Japanese 3 Armies reported to be advancing towards Mukden from east, south-east, and south-west, the outposts engaged 20 miles south-east of Mukden.

September 25.—Russian Field Army divided into two Armies under commands of (1) General Kuropatkin, (2) General Gripenberg.

September 25.—Circum-Baikal railway opened.

AMELIORATION OF THE CONDITIONS APPLYING TO NATIVE SOLDIERS DISCHARGED ON ACCOUNT OF MEDICAL UNFITNESS.

BY LIEUTENANT-COLONEL V. B. FANE, D.A.A.G., DERAJAT DISTRICT.

Army Regulations, India, Volume I, Part II., paragraph 523 does not seem to have been as yet realised by the Native Army generally. This paragraph lays down very clearly that men enlisted after the 30th November 1886, *must* serve for 21 years before getting a pension. So that a man broken down in health by service, a man who has done good service but by physical unfitness, caused by the service, becomes an encumbrance to his corps and whose discharge becomes an absolute necessity for the good of his corps and the Army generally, loses all his service and only gets a gratuity on discharge, which varies from 3 months pay to 12 months pay. This to my mind is a very serious condition of affairs tending as it does to make the Army unpopular.

It is well known what a pension means to any native. His one object in life is to get into the "Sirkar's" service and earn a pension. It is also well known what large numbers of men remain strong and robust up to 16, 17, 18 and 19 or even 20, years service and then all of a sudden become prematurely old men and utterly broken down, and in that condition become perfectly useless as soldiers.

It is very hard on such men to turn them adrift in this broken-down-in-health condition with merely a gratuity. Some Commanding Officers would, I feel sure, stretch a point and try and keep on these men so as to enable them to earn their pension, and from a charitable point of view no doubt this would be right, but, from a service point, utterly wrong. No doubt too in the past, Commanding Officers have got rid of men by a mixed board of latterly under I. A. W. 4 (b). Men whom they wished to get rid of, men who wanted to go off, real shirkers out of whom no work could be got, and no doubt abuses did creep in in certain cases, but the majority were fair and square enough. Now we will take two or three typical cases as examples. A man say of 18 or 19 years service becomes utterly broken down: what happens? He goes and gets a gratuity of 12 months, pay=Rs. 108.

Another case of a man of 14 years' service who also becomes broken down; he gets 6 months=Rs. 54. Not much of a sum of money wherewith to reward a man for his services. In a very few years this money is spent and he has to live as best he can, and must curse the day he ever took service under the "Sirkar" as a young man, and will do his best to dissuade all the young men of his village from enlisting in the Army.

Now I would propose a scale of pensions to meet the circumstances first of all premising that a man who has done good service for 15 years is deserving of some small reward,

The scale I would propose is as follows :—

					Rs.	a.	p.
After	15	years	...	...	2	0	0
"	16	"	...	...	2	4	0
"	17	"	...	...	2	8	0
"	18	"	...	...	2	12	0
"	19	"	...	...	3	0	0
"	20	"	...	...	3	8	0
"	21	"	...	...	4	0	0

Let us suppose a man of 21 years' service who has earned his pension of Rs. 4 is over 40 years of age and lives for 20 years. During these 20 years he would draw from Government $20 \times 48 = \text{Rs. } 960$. Now take the case of a man of 15 years service, granted Rs. 2 a month, we will assume that he lives for 26 years. He would draw $26 \times 24 = \text{Rs. } 624$, as it is he would have drawn Rs. 108 gratuity, so he only costs Government $624 - 108 = \text{Rs. } 516$, and this spread over 26 years at the rate of Rs. 24 a year, or about £ 1-12-0 a year is surely not a large sum to spend on a man who has given 15 years faithful service to his country, and when I make my calculations on 26 years of life, I think I am taking an extreme case. If one puts the life at 17 or 18 years as an average, one would be well within the mark.

Again ; a man of 15 years' service gets the same gratuity as a man of 20 years. And a man of between 10 and 15 years' service gets Rs. 54 where as a man of 20 years' only gets Rs. 108. So supposing a man of say 11 years' service goes, he gets Rs. 54, whilst a man of 20 years, or 9 years more service, gets only Rs. 108. To put it in figures, a man of 20 years' gets a gratuity of 8 annas a month extra for his additional 9 years service.

I think enough has been said to show what a serious question this is, and how important it is that the matter should be taken up by Government.

A SYSTEM FOR THE TRAINING OF SCOUTS FOR HILL WARFARE.

BY **LIEUTENANT R. D. ALEXANDER,**
and Battalion, 3rd Gurkha Rifles.

In dealing with the subject of the Training of Scouts for Hill Warfare, it may not be amiss to treat first with the qualities necessary for, and the work expected of, a Scout in hill warfare.

With regard to the type of man required, it is impossible to lay down any hard and fast rule, as each man varies according to his class, and no two classes entirely resemble each other. The natural hunter or wild trans-border tribesman is undoubtedly the best material. It was for the training of one of these classes that this system was devised, and for this reason no great stress is laid on teaching the taking of cover, such men being naturally adepts at the game. In any case the system may be said to apply to all classes, as the soldier is now-a-days trained in skirmishing, and the taking of cover almost from enlistment. Further training in these subjects should therefore be unnecessary.

Duties of Scouts.

The duties of Scouts in hill warfare against a civilised power differ materially from those required in warfare against savage tribes. In civilised hill warfare Scouts would necessarily take the place of a cavalry screen, and would as such, work days a head of the main body.

Duties of Scouts.

This is impossible in "savage warfare." And it is with "savage warfare" that this article deals.

The duties of Scouts under this condition may therefore be summed up under five headings as follows:—

- (a) To gain information.
- (b) To protect the main body (prevent the enemy gaining information).
- (c) To cover the retreat of slower moving bodies.
- (d) To seize important positions in quicker times than ordinary troops.
- (e) To keep down sniping.

The duties of ground Scouts are important, but they are not hard to teach. Ground Scouts should be entirely separate from the hill Scouts of a regiment.

The name "Ground Scout" explains itself; they are merely men trained to show the way over difficult ground. It is not proposed to deal with

Ground Scouts or their training in this article.

Qualities necessary to a Scout.

Having noted the duties of the Scout, it is now necessary to consider the qualities he should possess. He should be at least a marksman; he must be hardy, young and active; but above all he must be intelligent. Throughout the Indian Army men can be chosen, whose marksmanship and physique leave little to be desired, but in intelligence and quickness of mind they are often sadly deficient. It is therefore necessary to bring out and strengthen the mental abilities of the men and at the same time to bring their physical qualities to the highest pitch of excellence.

Before going into the system of training, it is perhaps necessary to say a few words about the organisation of the hill Scouts of a regiment.

Organisation.

The best system is to select two men from each section and one non-commissioned officer from each company. One senior non-commissioned officer, or native officer, should be selected to act as head of the Scouts.

A British officer should of course be told off to command the whole. This officer is hereafter called—"The Scouts Officer." The two men selected from each section should form a pair; two pairs a group; two groups a section. The two pairs from the right and left half companies of each Company should form two groups. A Section of eight men is thus formed from each Company. The advantage of this system is, that the Scouts can work in lines of sections, groups, or pairs according to the nature of the work, or the formation necessitated by the lie of the ground.

Scouts should never on any account work singly: pairs should therefore never separate.

Before commencing the course of training it is a good thing for the "Scouts Officer" to put his men through their annual course of musketry. By this means he gets, or should get, to know each man's temperament and peculiarities,—acknowledge, which is invaluable to him afterwards.

The "Scouts Officer" should be personally responsible for every man under him—for his health, conduct and training. He should be answerable to no one but his Commanding Officer and should not be interfered with by any one, except by the Commanding Officer's express order.

It is, to be remembered that in time of war the lives of all may be dependent on the proper working of the Scouts, and it is only by entire confidence being placed in the "Scouts Officer" that he, in his turn, is able to expect and receive from those under him implicit faith and obedience at all times and under all circumstances.

System of Training.

For the sake of clearness the different stages of training are written down and numbered. The various exercises are grouped in classes and are so arranged that the most difficult come last. Thus of 2, 3 and 4; 4 is obviously the most difficult: 6 is harder than 5: and 13 is the hardest of all.

The exercises are as follows :—

- (1) Transmission of verbal orders and reports.
- (2) Moving across country and reporting on exposed men.
- (3) Moving across country and reporting on men partially concealed.
- (4) Moving across country and reporting on concealed enemies.
- (5) Acting as rear-guard of a force retiring.
- (6) Seizing positions in the quickest time possible.
- (7) Keeping down sniping; pickets; bivouacs and camp defence generally.

(8)	}	1, 2, 3 and 4 practised by night.
(9)		
(10)		
(11)		

- (12) Training of non-commissioned officers in recognising and reporting on positions from which a covering fire may be obtained.

- (13) Reconnaissance.

It will only be necessary to turn back to the paragraph detailing the duties of the Scouts to see that exercises 2, 3, 4, 9, 10, 11 and 13 give instruction in the first two duties (*a* and *b*). Exercises 5 and 6 teach the duties of *c* and *d*; exercise 7 gives practice for *e*.

The various exercise will now be described each under its own heading.

(1) Transmission of verbal orders and reports.

This exercise, though one of the simplest for the men to understand, is perhaps one of the most difficult to carry out with entirely satisfactory results. To perceive this it is only necessary to form your men in a circle with say, ten paces interval. Give some simple order, such as an order for next days parade. By the time the order has passed through the 64 men it will have been entirely distorted.

It is a good thing to make each non-commissioned officer write down the order as the last man of his section repeats it to him. It will be interesting to note the gradual change in the wording, until a totally different meaning is conveyed.

The practical usefulness of correct transmission is apparent; by this means whispered orders may be passed at night; correct information transmitted by day.

The exercise has another very great though not so apparent an importance. It is an exercise for the mind. From a simple sentence at first, long and involved sentences may be given. Names, numbers, places, entirely unknown to the soldier, may be mentioned. Each man has to think : he has to use his brain ; and to make him think for himself and use his brain is the great aim and object of this system.

This exercise should be practised every day on the parade ground for the first week. After that it should be practised frequently. It is not necessary to have parades especially for it. It can be practised anywhere and at any time, and when so practised it is probably even more beneficial.

(2) *Moving across country and reporting on men exposed.*

This is a very simple exercise, but its object is to make the men give concise and accurate reports.

The method of practice is to send men on ahead, telling them to collect in groups : some sitting ; some standing or lying ; make them dress in different coloured clothes and not in khaki uniform.

The remaining men are then sent out to search for them.

The reports come in almost immediately.

" I have seen the enemy, Sahib." says one.

" How many?" " Many " he answers.

" Where were they?" you ask.

" Over there on the hill ", he answers, taking in the whole of the horizon and every hill as far as the snows, in one comprehensive sweep of his arm.

Now this is exactly what you wanted and expected, and this is the one and only way of showing him how useless such a report is. He knew he had something easy to do ; he thought he had done rather well ; he finds he has done very badly. He does not quite know why, but is anxious and willing to learn. That is the moment to explain to him exactly what he should have done, and it is then that the teaching will sink in. Another man comes to you, the report is just the same ; then another and another until nearly all have come, and all are thus shown the correct way.

It may be slow and wearisome, but it will save hours of worry and

Moving across country and reporting on exposed men.

theoretic platitudes afterwards. Theory is all very well with a trained mind, but it should be remembered that the native

is a child in mind. Theory may interest him for the moment, but it has no lasting effect. It is the hard unanswerable fact that appeals to him. Stick to facts and you will get a good sound trained man ; try theory, and you will puff him like some gaudy toy balloon which bursts at the first contact with anything that may hurt it !

After a week's report, the Scout's report should run something like this: " I saw five men on our right front in the dip between those two high peaks about 20 yards to our right of those big stones. One was standing ; two were sitting ; two were lying. The man standing had a black coat and white trousers. The men sitting were in green ; the men lying were in drab. I think one of the men sitting had no boots."

You ask him why he thinks so : " Because, Sahib, he looked as if he were taking a thorn out of the sole of his foot ".

Now some people would say : " Any fool could have seen that ; what is the good of all this rot." Of course any fool could have seen it, but it is the exactitude and correctness of the report that is aimed at, and it is only by constant, and at first simple, practices that it can be attained.

(3) —(4) Moving across country and reporting on men partially or wholly concealed.

These practices are merely practice No. 2 carried out under harder conditions.

(3) Moving across country and reporting on men partially concealed. Field signals should be frequently used and semaphor signalling should be practised if possible.

Service conditions should be gradually introduced. Reports (4) Moving across country and reporting on concealed enemies. should be taken from the men acting as enemy, since the Scouts can thus be trained for attack and defence simultaneously. The reports are also very useful in enabling the instructor to check any instances of unnecessary exposure or slackness that are thus brought to his notice.

(5) Acting as rear-guard to a force retiring.

(6) Seizing positions in quicker time than can be expected of ordinary troops.

These practices are almost entirely tests of physical powers, and

(5) Rear-guards. are carried out in accordance with the principles of frontier warfare and skirmishing generally. When practising (5), however, great stress should be laid on practising the removal of wounded men. During a retirement, when it is impossible to leave the wounded, one casualty may result in five or six.

It is therefore absolutely necessary that the wounded should be picked up and be carried off in the quickest time possible. One of the many methods of removing wounded men should be adopted and stuck to.

Every man should know it thoroughly, and practise it often ; on service this knowledge will be of the very greatest importance.

(7) Keeping down sniping : pickets, bivouacs and camp defence.

These practises are carried out in accordance with " Combined Training " and " Frontier Warfare." All

(7) Keeping down sniping : pickets, bivouacs, camp defence generally. men should be made to understand the necessity of changing the position of a bivouac after dark when a small force is bivouacing. This change of position is often of vital importance.

(8), (9), (10), (11) Night practices.

It is of course very important to train the Scout's eyes and ears to night work, but night work is attended with such dangers that it cannot be practised often. Moving off the roads even in cantonments, is very hazardous. On a bright moonlight night there is little or no difficulty, but then the usefulness of the work is almost entirely done away with.

Transmission of verbal orders and reports can and should be frequently practised.

(12) Training of non-commissioned officers in recognising and reporting on positions from which covering fire may be obtained.

Training non-commissioned officers to recognise positions from which covering fire may be obtained is very simple. Once they grasp the idea, it is only a matter of patience and constant repetition.

(13) Reconnaissance.

Reconnaissance is the last stage. Hardly any non-commissioned officers or men can ever become proficient in this duty. The points of the compass, the use of scales, the system of contours, all present almost insuperable difficulties. When one thinks that British officers themselves have often very vague notions on the subject, it is not to be wondered at that the native soldier finds his task a hard one. Of

course men trained as Surveyors are almost perfect, and it is perhaps best, if you have one in the regiment, to leave this part of the training to him under supervision.

Rough maps are better than none at all and these may be arrived at.

The native can very often describe the position of a "kill" by a rough map on the sand, and by beginning with something of this sort, it is possible to arrive at a fairly satisfactory result. The method would be something like this. Get on to the parade ground or some open space. Make a mark and call it the mess, then another and call it the parade ground. Ask the men how the road from the mess to the parade ground goes. They will be able to tell you how and where it bends. According to their directions draw it out on the ground, asking them the relative size of each bend. Be careful to show the relative size on the ground. By this means they will get an insight into the method of map making.

Training of Section Commanders and Non-Commissioned Officers during the foregoing practices.

It is now necessary to consider in what points the non-commissioned officers should be specially trained. During all the foregoing practices the non-commissioned officers should have books provided

with black copying paper.

Training of Section Commanders and Non-Commissioned Officers during the foregoing practices.

All reports should be made to the Section Commander, who enters them in his book, using the copying paper. The Section Commander will then send the man reporting, to the Scouts Officer with the written message. The Scouts Officer will hear the man's verbal report and check it by the written one. The Section Commander is thus made responsible for all reports. In cases, where the distance is too great for the men to report to their non-commissioned officer, their group leader should first hear the report. At first Section Commanders should send in all reports, but after a little while they should be allowed to use their own discretion. They should, however, always write down the men's reports, together with the name of the reporter; by this means the instructor can very soon tell if all the men are doing their fair share of work.

The wasters should be immediately returned to the ranks. One of the greatest difficulties the instructor will have to overcome, is to teach his non-commissioned officers to supervise closely without unnecessary interference. In work like scouting, the men are scattered at wide intervals over a broken and irregular country, and nothing is more easy for a man than to lie down and smoke behind a rock or bush as long as he pleases. If the men are nagged at and interfered with unnecessarily, they are very likely to do this on the first opportunity. Let the non-commissioned

Training of Section Commanders and Non-Commissioned Officers during the foregoing practices.

officers be taught to keep a very firm, but at the same time a very light, hand on their men. Let them know that they will be backed up on all occasions, and in a very short time all trouble and worry will be reduced to a minimum.

There is another very great difficulty, and that is to teach the non-commissioned officers to recognise the difference between scouting and skirmishing. For some reason, unknown to the writer, this difference is very hard for them to understand. It is therefore necessary to avoid all field day or parade orders as much as possible. If the section commander gives the fatal order; "From the right or left to—paces extend"; the men will at once fall into skirmishing methods and start sharp-shooting and fighting generally. When an advance is ordered, let the section commander be told as clearly and as shortly as possible the following points:—

- (a) The amount of front he has to search, indicated whenever possible by natural objects.
- (b) The formation he is to adopt, *i.e.*, lines of groups or pairs.
- (c) The position of the Scouts Officer.
- (d) What sections are on his right and left.
- (e) The supposed position of the enemy.
- (f) The place of rendezvous or the place he is to halt at, *i.e.*, a ridge, or stream, or some well-defined feature, where a halt may be necessary to reform or re-establish communication.

When the section commander has fully understood these points, he should explain them to his men.

After this, all that is necessary for him to do is to order one group to the right and one to the left in the formation ordered and give the signal to advance. When the Scouts are properly trained, they will divide the ground between them. Everything should be worked smoothly and quietly without any noisy whistling or shouting of orders.

In brief, the Section Commander has to explain to his men the following points:—

- | | | |
|-----|---|-----------|
| (a) | } | As above. |
| (b) | | |
| (c) | | |
| (d) | | |
| (e) | | |
| (f) | | |
| (g) | Which group is to go on the right, which on the left. | |
| (h) | His own position. | |

Formations adopted.

Before concluding this article it may not be amiss to consider the formations in which Scouts should move; of course the formations vary according to the nature of the ground and the amount of front the Scouts have to cover. But the consideration which is of the greatest importance is that of the means of communication laterally and from front to rear. If this communication has to be carried on by the Scouts alone without any assistance from signallers, then lines of groups and pairs seem the best formations. A fancy sketch is appended showing the 64 scouts covering a front of 4 miles with a depth of 3 miles.

The formation is supposed to be governed by the following suppositions:—

- (1) The enemy are in very small numbers only and no serious resistance is expected. Nature of the country open.
- (2) Signallers are for some reason unavailable.
- (3) The main body is advancing along the road.

With these suppositions it is necessary to adopt some formation that will afford easy communication from flank to flank and from front to rear.

In the sketch, A, etc., stands for A section in the front line; similarly A² and A³ represent the same section in the second and third lines. The three lines are composed of—

- 1st line groups.
- 2nd line pairs.
- 3rd line pairs.

For example, let it be imagined that the men at A have news of

Instance of how communication should be kept up. such importance that all the Scouts and the officer commanding advance guard should know it. It would be transmitted in the following way:—A man from A tells B, B have their Section Commander with them. He enters it in his book and sends one of his men with the message to C. The man from B repeats the message verbally and gives the

written message to G, who similarly transmit it to D. D Section Commander takes it down and sends on B's copy to the Scouts Officer. The Scouts Officer sends one of his orderlies with the message to D¹. The orderly waits at D¹. D² goes to D¹ and waits. D³ goes to advance guard. The other man at D¹ and D³ tells C¹ and E¹; C² and E², respectively. Meanwhile E is informed by another orderly. They pass to F, G and H.

D³ comes back and gives the note to D², D² to the orderly, any message from the advance guard can be transmitted laterally in the same manner.

The advantage of this method is that no man has to run more than 2 miles. The orderly, D¹ and D² run 2 miles only, having a rest in between. The whole message should go and come back the 8 miles in about one and a half hours, allowing for all delay in writing and receiving the message. Tired men who have been scaling hills since day-break cannot be expected to run long distances with any great speed! In such cases it is the distance that kills. If one man had come from A (2 miles) and another had to go to the advance guard, and back (6 miles), the message, allowing as above for all delays, would take at least two hours.

It may safely be assumed that the shorter the distance each man goes, the quicker goes the message.

With men thoroughly trained in transmission, mistakes should be very few or none at all.

Summary.

A short summary of the chief points to be noticed may not be amiss. They are only five, but they are as it were the five ingredients which go to make up the whole essence of the training. They are—

- (a) Get at the men's brains and make them think and reason for themselves.
- (b) At first nothing is too simple. It serves to give them confidence.
- (c) Stick to facts and steer clear of theory.
- (d) Never attempt anything hard until the more simple is thoroughly mastered.
- (e) Have patience; chide little; encourage much; above all never ridicule. Be gentle with all mistakes arising from a lack of intelligence; it is impossible to be too severe with faults arising out of indolence.

In conclusion, a word about Scouts in general. There is a natural tendency among officers in command of troops on field days, and presumably also on active service, to over-work their Scouts. Scouts are but human, even if rather harder and fitter than the rest of the rank and file. It should always be remembered that Scouts have the hardest and most arduous duty. Scouting first and attacking afterwards sound very fine, but it is a physical impossibility to do both properly. When the enemy is located, let the Scouts form up behind the attacking troops and rest.

If they are wanted for a dash, let them be kept for it. No one gallops a horse a ten-mile course to get him in trim to gallop two furlongs immediately afterwards. The Scouts should be eased in barracks and out of them, whenever possible. With the present system of half-mounting, scouting means a very great extra expense in boots and clothing to the men. Humour them therefore; let them think that they are picked men in a place of trust and honour, and by doing so, it will be found that each man will do his best, so that the whole will work harmoniously for the great aim and object of all training—a high pitch of smartness and perfection.

THE VALUE IN THE FIELD OF A HIGHLY MOBILE FORCE SPECIALLY ORGANISED WITH A VIEW TO DISTANT RAIDS, ITS TRAINING ORGANISATION AND EQUIP- MENT.

BY CAPTAIN C. BATTINE, 15TH HUSSARS.

The crux of the problem on which the Council of the Institution here invite discussion, lies in the words "specially organised".

There can be no question of the value of high mobility in the field ; and circumstances can be easily imagined rendering the employment of highly mobile forces on distant raids very advantageous.

Such circumstances arose for the Boers when forced on the defensive by the superior strength of the British columns, whose long lines of communication were particularly vulnerable to this form of attack. The Boers, however, employed the troops they possessed without any idea of special organisation, and it may well be doubted whether any special organisation would ever be possible or desirable.

About the tactics of the future it is most hazardous to prophecy, but it would seem that the sacrifice of troops in such a service to the neglect of other work, could only be justified when the war had degenerated into a mere worrying of the enemy, as distinct from fighting him in the open field ; guerilla war in fact of the sort already alluded to, or such as the Spaniards and Cossacks levied on the Grand Army.

What then should be the training, organisation and equipment of the raiders ?

The answer to these questions will probably be as follows : of training, they will have little or none ; as to organisation, that will be of the rough and ready type which the circumstances will create, and for equipment, they will have to use what they can collect in a hurry, and often from the enemy. By these replies I mean to infer that the history of war does not record the case of troops having been diverted from the main scene of action on distant raids, who could have been concentrated for battle without recording the disastrous consequences of the mistake. On the other hand, in cases where offering battle was out of the question, as for the Boers in the later stages of the recent war, or where it involved almost certain defeat, as it did for the Spaniards in their struggle with Napoleon, the circumstances formed the bands of guerillas who made the raids.

Any previous preparation for war during peace would rather tend to the creation of troops to take their place in the line of battle ; and the troops, whose lack of mobility and other qualities for fighting in the open relegated them to the second line, would rather be employed in guarding their own communications than in attacking the enemy's.

The study of military history has since the war in South Africa asserted its place in the education of our officers, and no doubt examples will be remembered from the great struggle in America—1861-65, of daring raids which carried havoc far in rear of the main armies, and whose results were more than once important. These raids, however, were invariably executed by the Cavalry of the opposing forces without any special organisation or equipment : and furthermore the most important of them all, the raid of the confederate Cavalry under J. E. B. Stuart, that prince of raiders, round the Federal Army in the Gettysburg Campaign, July 1863, although locally successful, was on the whole disastrous to the Southern Cause by depriving the Army at the crisis of its fate, and in an offensive campaign, of the main body of its Cavalry, together with the distinguished chief of that arm.

It is worse than useless to win on a side-issue and be beaten on the decisive field.

Stuart's great raid in June 1862, round McClellan's Army in the Peninsular, was brilliantly successful and accomplished material results, yet it did not for a single day stop the supplies of the Federal Army, nor interfere with the projected change of base. How much more decisive would the effect of forestalling the Federal Army at Malvern Hill have been, on its retreat from the Chickahominy to the James. Had the Cavalry seized this point and held it until supported by Infantry against McClellan's advanced-guard, who can doubt, but that the disaster to the Northern Army would have been complete ? If these historical deductions are correct, then it would seem that Cavalry is better employed by the side of the troops with whom it is co-operating, or in their immediate front, but not at such a distance that it can be separated and held apart by the enemy.

Without attempting an analysis of even the principal raids of the War of Secession, it may be generally remarked that the damage they inflicted did more to aggravate the sufferings of the war, than to hasten its conclusion, and even frustrated on occasions the intentions of the attacking side by giving the alarm and with it the warning of more serious enterprises.

Although both sides in this war fell into the error of carrying on petty campaigns at all points of the compass, and away from the decisive point, to an extent more remarkable and with results more disastrous than history records elsewhere, there was, so far as I am aware, no attempt on either side in the five years' warfare, to specially train or organise troops for raiding purposes, unless the record of some militia forces form an exception. The North might perhaps have done so to advantage ; the South had not a rider to spare from the Cavalry of her armies, and had either power succeeded in concentrating its scattered forces at the decisive point, that side must have prevailed. Even after the superiority of the Northern Armies had been established in the spring of 1865, there still remained in the judgment of General Lee a chance of victory, by uniting what remained of the two Confederate Armies, and by turning upon Grant and Sherman's forces in succession.

In some measure the regular divisions of Cavalry maintained by

Continental countries, and quartered for the most part along the frontiers, or within easy reach of it, are troops whose first duty at any rate, if not their principal rôle in war, would probably consist in making distant raids. Russia, Germany, France and Austria all maintain large forces of Cavalry mobilised and concentrated in peace, with the avowed intention of raiding the enemy's lines of railway at the first signal of war, and of disturbing the mobilisation and preventing the concentration of the other arms, and of the armies of which they consist. In some cases Infantry, in all Artillery, are attached to the Cavalry Divisions to help them to execute this task, the importance of which can hardly be overrated. Yet it is scarcely accurate to describe these troops as specially organised for raiding purposes, though doubtless their training and equipment provide for the contingency.

The principal rôle of the Cavalry in every country, where the study of land war has become a serious profession and vital interest, is the destruction of the enemy's main forces on the battle field. Infantry and Artillery can defeat the enemy, Cavalry alone can inflict the destructive loss and confusion which makes defeat decisive now as formerly. Every other duty, even its all important strategical rôle, is made subsidiary to this main purpose in organisation, training and equipment. Further, there is no conclusion more unanimously accepted than that the forces of Cavalry in an army, should be as large as the country concerned can afford to mount and maintain; and that all specializing of the arm into so-called mounted "Infantry" as distinct from Cavalry, which is both mounted rifles and mounted sabres, is the most foolish of fads, worthy only of an army whose rôle it is to do police duty in the Colonies.

The supply of horses will of itself divide the Cavalry of every army into sections, of which presumably the most highly trained men will have the best and the best trained horses, while the remainder are mounted on what can be got for them. It should never be forgotten, however, in laying plans for war that the supply of trained horses is very rapidly exhausted, and in a war which lasts more than six months, all the Cavalry, whatever they are called, will have to make the most of what they can get as remounts, and break them in as they go along. This then should be taken count of in the tactical training of Cavalry.

Extreme accuracy of movement on level parade grounds, has a certain value in discipline and in horsemanship, but has little resemblance to anything that is seen in battle. I venture to think that one of the greatest mistakes we have hitherto made in the preparation of our Cavalry for war, is the confusion which has arisen between the necessity for this mechanical accuracy, and the necessity for shock tactics.

To say that the rifle has now become the principal weapon of the Cavalry as of the Infantry soldier, is true to this extent: he will make use of his rifle on fifty occasions, to one chance he gets of using his steel weapon, but it should never be forgotten that the one chance of charging with sword or lance might be decisive of a war. To miss it would probably be to lose an opportunity which does not recur, and entail months—perhaps years—of bloodshed.

It is just as foolish to organise, train and equip mounted troops without shock weapons, as it is to equip men of war without torpedo tubes. Guns are the principal weapons of a fleet, yet no naval commander would willingly forego the advantage of his secondary armament, which under given circumstances might be his decisive weapon.

So it is with fire and shock for Cavalry.

Far from lessening the power of charge, the possession and trained use of quick firing rifles has immensely added to the formidable power of charging Cavalry, which can prepare its own way by the fire of one fraction, while another lies in wait to take advantage of it. There is besides the very weighty consideration that all charges, even the most successful, are apt to be evanescent in their effects, which are more moral than material. Some arm capable of stubbornly defending the captured ground, must follow up the rush of horsemen. Formerly Infantry alone possessed this staying and holding power. Today it is shared to a very important extent with Cavalry, which can thus secure and make good what it has got by snatching or surprise.

In brief, the most formidable weapon of the Cavalry of to-day is combination of fire and shock.

The enthusiasts who belittle the use of the rifle would replace it by Horse Artillery. If the experience of the war in South Africa is good for anything at all, it is a conclusive proof that they are wrong in this respect, and that the rifle in the hands of horsemen is a far more fatal weapon than Horse Artillery can ever be, though the latter doubtless has its rôle.

The faddists who would put foot soldiers on horseback in the line of battle overlooked a cardinal fact. Shock tactics are out of the question unless a sufficient force of Cavalry is employed. From the half digested and often incorrectly told accounts of Continental battles in France and elsewhere, examples can be cited of the defeat of Cavalry by Infantry firing rapidly. Two examples are most frequently quoted, and are perhaps the most disastrous repulses suffered by Cavalry at the hands of Infantry in modern war. They are the defeat of McMahon's Cavalry on August 6th at Reichshoffen, and of General Marguerite's Hussars at Sedan.

In the first mentioned fight the Cavalry attack was made through vineyards in which the defending Infantry were practically inaccessible. The whole French right wing was in confused retreat at the time the Cavalry charged to cover the retirement, and less than 2,000 Cavalry were thus flung into the gap to stop the Infantry of two Army Corps, which in spite of the unskilful tactics employed, they succeeded in doing long enough to enable their Infantry to escape utter destruction.

At Sedan the French Cavalry leader had the reputation of being a skilful tactician, but the circumstances gave him no chance of success. His own Infantry were receding at every point under the converging attacks of Infantry and Artillery. The bare hill sides gave no means of surprising the deployed lines of the German Foot, still less of getting near their guns. The gallant attack was made

more to save the honour of the troops, than with any hope of defeating the enemy.

Yet the French Squadrons succeeding in closing with the Prussian battalions and riding over their first line of riflemen, and many Hussars were killed and captured in among them. The respective numerical strength was:—French, less than 3,000; Germans, the deployed Infantry and Artillery of two Army Corps.

And such instances are gravely quoted to show the impotence of Cavalry in the teeth of modern armament.

One lesson, however, these events unquestionably teach. It is folly to make use of shock tactics without adequate force, and that force should, as a rule, be not less than one-third of the troops attacked. It is unfair to ask the Cavalryman to ride down more than three foot-soldiers; while supporting troops with fire action, must always be prompt to hold what the shock has won. These supports may consist of Infantry or Cavalry and more rarely of Artillery. Without them, however, the charge will generally inflict but little material damage, and the terror it has inspired will pass away. It follows then, that unless your Cavalry is present on the battle field in sufficient numerical strength, it will never charge with a prospect of success.

What has this to do with the specialization of part of the arm for fire action, while the remainder is used for shock, and apparently for fire as well, since it is armed with rifles? The Mounted "Infantryman" argues that since some of the Horse must under any circumstances be employed for fire action even in a charging fight, his people will always have their rôle to play. The reply is as follows:—The events of any battle cannot be settled beforehand. The opportunities for attack, but most of all for a Cavalry attack, are precious in proportion to their rarity and fleeting character.

To collect your shock Cavalry at one point, where you anticipate you may have a chance for it, and your Mounted "Infantry" at another, is certain to lead to a repetition of the fiascos of South Africa. The opportunity for charging will invariably occur where the charging Cavalry is not, and *vice versa*.

If you decide to charge, you must put in every sabre within reach, and even then you will still regret that you are too weak by half.

This is the great lesson of every modern fight where shock tactics have been attempted successfully or otherwise.

During the war in South Africa there were several thousand Cavalry soldiers, mostly without horses, loitering about the Depot barracks at home, and a large and varying number in the same plight cumbering the rear of the Army in the field. Infantry battalions on the other hand, were emasculated of their best shots and most courageous officers and soldiers, of whom they had none to spare, to form the Mounted "Infantry" units. In process of time no doubt the Mounted "Infantry" became excellent Cavalry. The process, none the less, of employing your Cavalry dismounted to do garrison work, while your regiments of Horse are drawn from Infantry cadres, is more foolish than anything recorded of the Chinese. Closely allied with organisation and tactical training is, the problem of developing the power of Cavalry in the strategic rôle.

The most important part of these duties consists in the service of security and information, by which alone your own troops can have the necessary confidence and repose for long matches and combined operation, as well as the early news to enable successful attacks to be made.

It is generally acknowledged that the successful performance of this work is not to be hoped for unless the enemy's Cavalry, who are certain to interfere with it, can be defeated by your own, and it has been consequently deduced that the main body of the Cavalry on either side will collect for a combat of the conventional type seen at Cavalry manœuvres. Such, at any rate, is the view upon which our Cavalry training in India from 1887, and in England from 1895, till the Boer war was founded. The war showed conclusively that it was utterly wide of the mark.

The Boer Cavalry having no practice in shock tactics, not unnaturally declined to form up in three lines on the Veldt to be ridden down and sabred by our heavy Cavalry, but with a wicked contempt of every accepted convention of Aldershot and Simla, they made use of the fire tactics which they understood better than our wrongly trained troops.

The Boer performances in the winter of 1899-1900, are amongst the best recorded of Cavalry in the work of defence and delay; they lacked but the combination of shock with fire to inflict decisive disaster on several occasions; and that fortunately was not to be feared from Militia Cavalry.

The leaders of the Southern Cavalry in the American Civil War, even with the inferior fire-arm of that date, had developed a fine combination of fire and shock tactics, which they brought to bear with marked success in a number of fights, both small and great. Their tactics in the defensive might have been the model on which the Boers based their plans, so much did the defence of the lines of the Potomac and Rapidan and the Passes of the Blue Ridge resemble the Boer defence on the Tugela and Modder. Not until the third year of the war did the Northern Cavalry venture to meet its formidable opponent in the open field.

The same policy will doubtless in future be followed by the Cavalry which feels itself inferior to its opponent in the open, and the fighting between the two will develope into a struggle for tactical points between dismounted men. The opportunities for using the mounted superiority will occur but rarely. They will depend on circumstances hard to find together. Perhaps it may be considered pedantic to give a list, but the following seem to be the principal conditions.

First and foremost suitable ground is necessary. Shock is almost out of the question unless Cavalry can deploy one-sixth of its strength at least and unless it can gallop. Then good strategy must have driven the enemy on to such ground, and good tactical combinations must have ensured that the attack in force will be promptly supported, and that the results will probably repay the inevitable loss in men and in horses.

After the Cavalry on one side or the other has defeated its rival, I believe it is a mistake to assume that the beaten horsemen will cease to give trouble. It seems more probable that they will sharpen their wits and fight by surprise and ambush as far as possible, relying on the efficacy of the magazine rifle with smokeless ammunition in delaying and detaining superior numbers, and the chances it gives of shooting down reconnoitring parties, particularly in a close country.

The victors in the Cavalry fight will then have to meet their opponents on their own ground and be prepared to fight for all their information with the rifle on foot, and more rarely by combination of fire and shock. So that contrary to the doctrine taught us hitherto that shock tactics against Cavalry, fire tactics as an exceptional measure, and against Infantry should be the rule, it appears more likely that fire tactics will be the normal employment of Cavalry against enemies of all sorts, and that the opportunity for delivering a decisive charge will more often occur against the hostile Infantry, especially in fighting on a big scale, than in the Cavalry fight.

It is a mere slaying of the slain to go through all the reasons why the great armies of the world have without exception decided that the mounting of Infantry is a costly absurdity; there are two points, however, which may be worth recalling once again. The first is that no mounted force is of enough use to justify its cost unless the men can ride. Bad riders make bad Scouts and their movements will be so slow as to make them a constant anxiety to their own side. Least of all will their shooting have any terrors for their enemies. Even a good horseman's marksmanship is much affected by a gallop over rough ground; rapid movement of bad horsemen defeats them more effectually than hostile bullets. To quote the Boers as Mounted "Infantry" is a patent absurdity, since they were all thorough horsemen. If your Mounted Riflemen are good horsemen, what reason can there be for depriving them of the shock weapon?

The other point closely allied to the one just stated is care of horses. Hastily improvised mounted troops will be terribly costly in remounts to the nation which employs them. This last question is so important, that it well deserves more consideration than it has received. It is hardly too much to say that the superiority in horses has decided more than one great war.

So answerable and so obvious are these considerations, that it seems to the author necessary to seek for other than tactical reasons in the decision of the British Military Authorities to countenance Mounted "Infantry." It would seem that the old jealousy of the regular Cavalry, and the desire to maintain it for spectacular, rather than for working purposes, or at any rate to limit the Cavalry arm to the narrow sphere it has hitherto held in our army, instead of the place which the American and Boer wars proved to belong to it, has exercised a baneful influence in the organisation of our mounted troops.

Conclusion.

The subject of distant raids has led into a disquisition on the tactical rôle of Cavalry, the arm, which must be depended on for raids on a formidable scale.

Cases in history have occurred of raids executed by Infantry alone,

such as the feat of the French franc-tireurs, who blew up the railway bridge over the Moselle at Fortenoy in January 1871; but obviously Cavalry is more suited to enterprises of the sort.

Cavalry, however, is very precious by reason of its special duties, of which reconnaissance in the strategic field, and pursuit in the tactical, are of the greatest importance. Other things being even approximately equal, the side inevitably wins in war which has the best Cavalry, and by Cavalry, I do not mean Infantry soldiers on horseback, but trained riders. The finest strokes of generalship cease to be dangerous when the Cavalry is absent, and with Stuart raiding round the Federal rear and frightening the Washington politicians into fits, Lee at the head of the chosen Infantry of the Confederacy, failed to defeat a General Meade. The presence of Stuart's horsemen on the days preceding Gettysburg, might have changed the fate of the whole war.

Therefore, I conclude that to part with Cavalry which is fit to take its place in the line of battle for distant raids, however promising, and still more to spend the resources of the State, none too lavishly poured out in peace, on organising such schemes, is a dangerous policy.

COMMUNICATION IN THE FIELD.

BY LIEUTENANT COLONEL H. V. COX, 68TH PUNJABIS.

Most officers, especially of the Indian Army, must have found a difficulty in keeping in communication with scouts, patrols, etc. At the long distances at which such parties are now obliged to work from the main body of their unit.

The Morse signalling system is not applicable to scouts as a whole, or to patrols, and can be learnt only by a few men in a battalion.

Semaphore signalling is better, but quite beyond most native soldiers and many native non-commissioned officers.

The field signals with rifle, hand or head-dress are very sound, but do not catch the eye at long distances.

The following system has been tried in my battalion with considerable success;—

It at all events has the merit of simplicity, and can be taught to almost any sepoy in half an hour. The following are all the instructions we found necessary:—

Field signals with red and yellow flags—

(1) Principles.—Of this system are—

(a) Adherence, as far as possible, to the form of signal laid down in Infantry Training, 1902. Part I, but with bright colored flags, so as to catch the eye at the long and wide distances we now work at.

(b) The red flag always refers to the enemy and what he is doing, *i.e.*, is a "danger" signal.

The yellow flag never refers to the enemy, and unless a special signal is made with it, is a "safety" signal.

(c) Signals are from front to rear of units.

2. Code. *Red flag* and advance signal once, and stop once, and stop again, means "Enemy's scouts advancing".

Red flag and re-inforce signal means "enemy in force".

Red flag and halt signal, means "enemy halted."

Red flag and incline signal, means "enemy moving in that direction."

Red flag and change direction signal, means "enemy moving round that flank".

Red flag and double signal, means "enemys mounted scouts."

Repeated many times means "enemys cavalry in force".

Yellow flag.—Shewn and waved once or twice, means "all safe" "no enemy in sight".

Yellow flag.—Waved slowly to and fro in front of feet, means "running short of ammunition".

Other signals can be made with this flag, such as for example :— Yellow flag and advance, to mean "you can come on," or yellow flag and change direction "better move round that flank" etc., but these should only be made by order of a British or Native Officer.

Both flags.—Waved across each other means "caution" "suspicion" "wait a bit". *Ex* :—scouts wishing to search, a wood thoroughly as enemy is known to be close by, might use this signal from near edge to stop advance guard during this operation.

3. *Method of Communication of Signals.*—All scouts carry one flag, thus each pair have a red and yellow flag between them.

The Native Officer or Non-Commissioned Officer of the party immediately in rear of scouts has a man with both flags with him to answer and pass on signals.

The double Company Commander, or Officer next in support, has the same.

The Officer Commanding has the same.

4. *Cautionary.*—The flags are issued with a khaki cloth case to hold them to be slung on the belt.

All ranks must be most carefully instructed never to use the flags on or quite close to the sky line, and always from behind some sort of cover such as near slope of a hill, a bush, tree or rock.

Using the flags where enemy can see them, simply calls his attention to the users and does a great deal more harm than good.

N. B. Flags must never be carried unfurled ; this is most important.

The flags we use are 18 inches square, with bamboo sticks just sufficiently long beyond the flags to be gripped in the hand.

As an example of the use of the flags, the Battalion was being exercised at convoy duty in hills against savage enemy.

A short time ago, I, at head of convoy in main nala, had the following communications with one of my double Company Commanders, lining heights a considerable distance above and away from me.

Enemy in sight (from D C. scout).

Enemy advancing in force (from D. C. C.)

I require re-inforcement (re-inforcement sent).

Enemy retiring.

Enemy moving south.

You can safely advance.

PRÉCIS OF FOREIGN MILITARY PAPERS OF SPECIAL INTEREST.

GERMAN PAPERS.

BY MAJOR H. W. R. SENIOR.

Internationale Revue ueber die gesamten Armeen und Flotten (July to October and supplements).—The July, September and October numbers deal with the efforts being made by China to increase her military strength. The Chinese seem at last inclined to abandon their idea of drilling troops on the systems of every nation in Europe and are pinning their faith on Japanese instructors, of whom many are at work in their military schools. The Viceroy of the Yangtse Provinces has just issued an order abolishing the German and English systems of drill, which were in use with his troops, and adopting that of the Japanese. On the sea, however, British superiority is still acknowledged. A school for Naval cadets has been started at Chifu under the supervision of a British Naval officer. Sir Robert Hart hopes by better methods of tax-collection to obtain an annual surplus of 120 million taels which is to be used in improving the military and naval power of China. According to his scheme army corps of 50,000 men each are to be raised in Chili, in Canton, and on the Upper and Lower Yangtse. Men are to serve 4 years with the colours, and four with the first and second-reserves respectively. By this means in 10 years time each of these corps will dispose of some 125,000 trained men. Every corps district is to have a military school for the training of officers, and 2 million taels yearly are to be set aside for this purpose alone. For sea defence 3 squadrons are proposed, a northern, a central and a southern. Each squadron will have a war school for the training of its officers and will consist of 20 ships, 10 destroyers and 50 torpedo boats. The October number announces that as a means of easily apprehending deserters all soldiers are to be tattooed on the thumb of the right hand. It is evident from this that any true national spirit or patriotic idea of defending his country is still wanting to the Chinaman.

The July number contains a very full account of the French fleet. It appears that between Dunkirk and Rochefort the French have available for use against the southern English ports, whenever necessary, 132 torpedo vessels and 13 submarines.

The following number points out the difficulties the Germans experience in manning their rapidly increasing fleet by means of compulsory service. Of the 6,944 naval recruits drawn in 1902 more than half, *vis.*, 3,756, belonged to the land population and had no previous connection with the sea. On conclusion of their compulsory sea service these men would return to work mostly on land and thus as reserves for a navy in no way would be the equals of a sea-faring population.

This number also gives some interesting information as to the rationing of the Japanese army. The ration is the same for both officer and soldier. The normal daily issue is:—rice $1\frac{1}{2}$ pints, meat $\frac{1}{2}$ lb., vegetables $\frac{1}{2}$ lb., pickled plums or pickled carrots $\frac{1}{2}$ oz., bean sauce $\frac{1}{2}$ oz., salt $\frac{1}{2}$ oz., sugar $\frac{1}{2}$ oz., tea $\frac{1}{2}$ oz. Once a week there is an issue of extras, cake $\frac{1}{2}$ lb., rice spirit (sake) $\frac{1}{2}$ pint, and 20 cigarettes. The

9½ oz., meat 11½ oz., rice 14 oz., wheat 12 oz., beans 2½ oz., carrots 8½ oz., radishes 9½ oz., other vegetables 5 oz., sugar ¾ oz., a total daily ration weighing 4½ lbs. Whenever possible preserved meat is issued only once in five days.

The 64th French supplement contains a long review of Von Kaemmerer's book on the development of strategy. The author points out that the principal difference between the Napoleonic and Moltke's systems of leading armies was due to those modern improvements which made the use of extended fronts possible. Napoleon was forced by the want of roads to march 60,000 or 70,000 men on one line. At the present time the net work of roads, which covers most European countries, makes it possible to give each army corps, almost each division, separate parallel routes. In Napoleon's time the "base of operations" was a comparatively limited tract of country. Now-a-days railways enable us to draw on the resources of the whole mother-country, and if the command of the sea is assured even of the whole world. Napoleon had to depend on the use of despatch-riders and on the slow-working semaphore to direct the co-operation of his forces. The electric telegraph now ensures such co-operation between the most distant parts of an army. Lastly, modern long-ranging quick-firing arms have made the Napoleonic plan of piercing the enemy's centre almost impossible and by enforcing the use of wide turning movements have greatly lengthened the duration of the modern battle.

The 53rd German supplement is devoted to a description of last years manœuvres in Japan, followed by a review of the method of instruction in the Japanese navy.

Militär Wochenblatt (Nos. 66 to 110 and supplements).—In the first two of the numbers under notice Von Gentz gives the result of some of his observations while fighting on the Boer side in the late war. Our artillery appears to have produced extraordinarily little effect. He declares that the result of artillery fire at Potgieter's Drift for 3 days was only 6 Boer dead and a few wounded. According to the author the Boer aim was to avoid opening fire in the attack beyond 800 metres, or in the defence beyond 1,000 metres, although he instances Vaalkranz and the Sand River as actions where fire was opened at 1,500 and 2,000 metres respectively. The Boers while under fire usually kept themselves well concealed in their trenches. They always received ample notice when a British line was about to advance by the shouting of the captains, the running forward of the section commanders and the cessation of fire. Relieved temporarily from the pressure of the British fire at the moment when the moving line offered the best target, they made the best use of their opportunity. It is noteworthy that the author, while considering that the Boer successes were due to the fact that they were the most excellent mounted infantry, deprecates as a backward step the introduction of this arm into the German service.

No. 73 tells us that Switzerland has at last adopted new field service regulations to replace those of 1882, now somewhat obsolete.

No. 77 has an interesting article on the use of heavy artillery in the defence and forcing of the crossing of rivers. The author's remarks are based on the battles of Colenso and the Yalu. He thinks that in the attack heavy artillery should be massed under cover as much as possible to the front and at the point near which it is intended to force the passage, and that it should act especially against the enemy's Cavalry. On the defensive the role of the heavy artillery is first of all October number gives the naval ration. This consists normally of bread

to prevent the construction of the bridges. After destroying these it should turn its attention to the artillery of the attack.

No. 84 contains a plea for the increased employment of coloured troops in the German Colonies.

No. 93 has an interesting article on the military schools of the United States, to which militia as well as regular officers are admitted. These are—

- (1) The Academy at West Point.
- (2) Garrison schools for the theoretical instruction of officers.
- (3) Post schools in every cantonment for the instruction of the non-commissioned officers and men.
- (4) Infantry and Cavalry schools, a school of Signalling and a military Staff College at Fort Leavenworth.
- (5) Artillery schools at Forts Riley and Monroe.
- (6) The War College and the School of Engineering at Washington.

Nos. 94, 95 and 96 deal with the use of wireless telegraphy in war. The author especially emphasises the value of wireless telegraphy for the lines of communication in a hostile country, where the ordinary line is liable to be cut. Visual signalling necessitates stations within 30 miles of each other, while with this system the stations can be 70 miles apart. The German field apparatus is said to have been a great success during the last manœuvres. It is carried in a two-wheeled cart linked to a two-wheeled limber, the whole drawn by 6 horses with a working detachment of 6 men.

The limber carries the receiving instrument, the dynamo, induction coils, breaker, the tape printing machine and a gas reservoir, from which the balloons that carry the aerial wire are filled. The cart has the sending apparatus, a 5-horse power benzine motor, and a benzine carrier.

Nos. 107 and 108 review the Japanese field service regulations. The Japanese soldier on the line of march is allowed the greatest freedom which his innate spirit of discipline and self-denial prevent him from abusing. The strength of the Japanese advance guards is noteworthy. They must consist of all arms, and may contain $\frac{1}{3}$ of the whole infantry of the force.

In No. 110 Lieutenant-General Von Pelet-Narbonne considers the effect of the new limitation to 2 years of the colour service of the French Cavalry. The reduction of the length of service combined with the greatly increased work which is now demanded from the mounted arms makes the French experiment a somewhat dangerous one. In Germany it is considered impossible to train cavalry and horse artillery in less than 3 years. Whether the word *impossible* is not French remains to be seen. The aim of the Saumur cavalry school has been to train men to ride any horse. It is a fault of such institutions as Saumur to get out of touch with the actual requirements of the service. With such short service it is the trained horse which must teach the recruit to ride, and in future it will be the aim of the French cavalry to so educate their troop horses that they may be ridden by any man. The small number of Frenchmen who re-engage makes the provision of a sufficient staff of trained men to teach the horses another difficulty. It is proposed to meet this by mechanical means. Captain Descoins has adapted from Norton Smith, who travelled with Barnum's circus, an American system of training by the aid of special lungeing reins. This experiment will be closely watched in all countries which have compulsory

service, the duration of which it is the aim of everyone to shorten as much as possible.

The 6th supplement has two articles. The first of these deals with the various methods by which communications can be maintained through the various widely separated portions of modern armies. The sure and rapid transmission of news and orders has always been of the first military importance, but the wide extent of front covered by modern armies makes the chances of success depend more than ever on their proper co-operation. The author discusses in turn the bicycle, the motor car and the motor cycle, the airship, pigeons, trained dogs, signalling and telegraphy both with and without wires.

The second article describes the battle of Oltenizza in 1853, when the Turks crossed the Danube and fortified a position opposite Turtukai, where supported by the fire of a river flotilla they beat back the attack of Dannenburg's Russians.

The 7th supplement is an account of a lecture on the lessons of the Boer War. The author considers the failure of the British attacks to be due to the want of practical training among the leaders and their consequent want of self-reliance, and to the want of proper musketry training in the soldiers and their resultant inability to shoot from behind cover, to judge distance correctly and to alter aim and sights to suit the changing conditions of the battlefield. He thinks that the British attacks were meant to win positions rather than launched with the view of destroying the enemy. The author emphasises the close support which the artillery must give to attacking infantry. He quotes the fight at Bergendal (38th August 1900), at which the British artillery continued bursting shrapnel over the Boer trenches until the fighting line was but 50 yards away, so that their final rush took the Boers entirely by surprise. He declares that in the great continental armies "there is no room for mounted infantry." He thinks that the length of the war was due to the general failure of the cavalry to pursue, which is ascribed by him to the desire to avoid losses.

The 8th supplement is a long description of the fight in the Holawald on the right of the Austrian position at Koenigratz. The capture and subsequent retention by the Prussians of this wood appear to have considerably facilitated the action of their second army on its arrival on the field of battle.

No. 9 is full of the old Hanoverian army. The first portion gives incidents of its history from 1722 to 1866. The second tells the story of the Hannoverian surrender to the Prussians in the "Seven Weeks War", when false strategy had made their position impossible, even though they had just won the tactical victory of Langensalza.

Militär Literatur Zeitung (Nos. 6 to 8).—The opening articles of the first two numbers deal with the more important books of the Russian military literature of 1903. The system of perquisite and speculation which appears to reign among all the responsible ranks of the Russian army is said to be the cause of their early breakdown in the current war. No. 7 also contains a review of the Swiss military literature of 1902-03.

In No. 8 the literature published during 1903 concerning the various cavalry question of the day is reviewed. The same number has a very favourable review of Colonel Lonsdale Hale's "The People's War in France 1870-71", in which the efforts made by Gambetta's levies to relieve Paris are related.

FRENCH PAPERS.

BY CAPTAIN C. W. G. RICHARDSON, 19TH PUNJABIS.

Revue du Cercle Militaire (June, July, August).

By far the most interesting articles in the *Revue de Cercle Militaire* of this quarter are devoted to descriptions and criticisms of the incidents of the Russo-Japanese War. The articles are illustrated by clear, well-drawn sketch maps, but through them there runs a strong Russophile bias which detracts somewhat from their value as estimated from a purely military standpoint.

The number issued on the 11th June contains a spirited account of the battle of the Yalu—described by a Russian officer who took part in the operations. In reading an account such as this, we have to allow, naturally, for prejudice, but nevertheless these articles provide a most welcome change after the starvation diet of news, we receive direct from the seat of war. In this particular article, the writer describes the method of attack adopted by a portion of the Japanese army; according to his observations, the Japanese first line came on in a dense cloud of skirmishers who advanced to within five hundred yards of the 11th East Siberian Rifle Regiment, the latter then charged, but the skirmishers instead of standing to meet them made off to either flank and unmasked a solid line of men which, the moment the front was cleared of their comrades, poured volley after volley into the charging Russians and practically annihilated them.

The next article on the war analyses the Russian losses on the 1st May (the fight at Turmcheng) and also describes the Naval operations between the 15th and 22nd May, during which the Japanese Cruiser "Hatsuse" was lost.

As regards the Russian losses: Captain Paicovin, who is the author of these articles, calculates that 21.1 per cent. of the entire force under General Zasoulitch and 38.3 per cent. of the troops actually engaged, were put *hors de combats*. He also gives some percentages of losses borne by individual units, thus:—

The Machine gun battery lost	67	Per cent.
11th East Siberian Rifles ...	43.4	"
12th East Siberian Rifles ...	45.5	"

Amongst the officers of the force, the casualties amounted to 44 per cent. Medical officers will be interested to learn that in this battle the proportion of killed to wounded, was 1 killed to every 2 wounded. The next article describes in terms of the highest eulogy the disembarkation of the Japanese at Pitsewd.

The battle of Kinchau is well described in the 16th of July number, and in the following number General Stocassel's official report on the battle is reproduced and criticized.

In the 30th July number the tactics of the battle are discussed and the writer ascribes the success of the Japanese to two main causes, firstly, their excellent and daring employment of their artillery, supported by the fire of the gun boats and, secondly, to the venturesome turning movement carried out by the Japanese 4th Division, through the waters of the Bay of Kinchau.

The articles in the numbers for the 6th, 13th and 20th August give an excellent description of the reconnaissance carried out by General Lumenkamps Cossack Division. The task set the Division by General Kuropatkin was that of ascertaining the intentions of the Japanese after the passage of the Yalu. The work done by the Cossacks seems to have been attended by great difficulties, the greatest of which was apparently the scarcity of food for men and animals. The Cossack horses—small animals from the trans-Baikal region—appear to have been totally unequal to the work demanded of them, and in many cases mishaps were due solely to their break down.

Amongst the other articles contained in the *Revue* of the quarter under notice the following are of most interest.

"Some old ideas on the recruiting of the French Army." That the old ideas were sound will be readily acknowledged when we find amongst them the following :—

- (1) The army should be a National Institution.
- (2) Every adult capable of moving arms should serve in the defence of his country.
- (3) The length of service in the army should be as short as is compatible with efficiency.
- (4) Employment after service in the active army should be assured to every soldier. Although these "ideas" date back to 1814—nearly a century ago—they are as true to-day as they were then.

The number for the 11th June contains a note to the effect that the training of carrier pigeons is to be encouraged in the French Cavalry.

The French army apparently has been watching the progress of the Thibet Mission with much interest; all the Indian telegrams telling of the advance of the troops under General Macdonald are faithfully chronicled.

The second article in the number for the 9th July will be of interest to the medical profession, as it discusses the health statistics of the French and German Armies and gives some interesting figures regarding the comparative healthiness of the different branches of the service in France.

The "Dead Captain" is a fantastic lucubration running through three numbers, which shows there is no rest in these latter days for the soldier even in the grave.

In the number for the 6th August a most interesting series of articles on "Infantry training" is begun.

The first few parts deal specially with the training of the modern soldier as an individual; marksmanship, skirmishing and cover are most intelligently discussed, and the whole series shows that the lessons learnt by us in South Africa have not been thrown away by the military nations of the continent;

Revue Cavallerie.

The May number contains, amongst others, two interesting articles. The first is on "Discipline and Command" and the second on "Amateur strategists!"

The writer of the former lays stress on the difference between a severely enforced iron discipline, and the discipline which raises the self-respect of the soldier and influences him in the performance of his duty by making him sink his own selfish individuality in the desire for the public gain.

He animadvertes strongly on the form of discipline exercised in the German army and points to the ever increasing numbers of men who evade military service from a dread of the severity of life in the army.

The second article mentioned—An Amateurs de Stratégie—strikes one as being somewhat flippant considering the theme, but, be this as it may, the writer pricks many familiar bubbles and by the directness of his remarks shows that, much that is involved in a pseudo-scientific haze which fills the would-be seeker after knowledge with awe, is, after all very common place.

The June number commences a most interesting series of articles entitled *Le Commandant Allemand en 1870*, which deals at considerable length and in detail with the strategy of Von Moltke. The articles are well worthy of perusal as they tap certain sources of information with which one does not meet in the last majority of the books from which we are accustomed to draw our ideas of the 1870-71 Campaign.

The series of articles on the employment of machine guns with Cavalry is continued.

A brief notice is given of the establishing of a Cavalry School on Salisbury Plain.

In the July number, the discussion of Von Moltke's strategy is continued and is, in the ground that it covers, more interesting than the first article, as it deals with the mobilization of the German armies. The telegram which set the troops moving is remarkable in its brevity and conveys some idea of the perfection to which all arrangements for the war had been brought.—It runs as follows:—

Berlin, 15th July.

10 P. M.

Mobilization in accordance with scheme. The 16th July is the first day of Mobilization.

(Signed) Roos.

The Hassars at the blockade of Mantua is an interesting article and light reading.

RUSSIAN PAPERS.

NOTE.

As probably owing to the war, the "RUSSIAN MILITARY" periodicals arrived very late and it has been impossible to give a précis of them in this number; further, as they are of exceptional interest it has been thought advisable to give a more extended précis than usual, and this will appear in the January number.

United Service Institution of India.

Prize Essay Gold Medallists.

- 1872.....ROBERTS, Lieut.-Col. F. S., V.C., C.B., R.A.
 1873.....COLQUHOUN, Capt. J. A. S., R.A.
 1874.....COLQUHOUN, Capt. J. A. S., R.A.
 1879.....ST. JOHN, Maj. O. B. C., R.E.
 1880.....BARROW, Lieut. E. G., 7th Bengal Infantry.
 1882.....MASON, Lieut. A. H., R.E.
 1883.....COLLEN, Maj. E. H. H., S.C.
 1884.....BARROW, Capt. E. G., 7th Bengal Infantry.
 1887.....YATE, Lieut. A. C., 27th Baluch Infantry.
 1888.....MAUDE, Capt. F. N., R.E.
 YOUNG, Maj. G. F., 24th P. I. (specially awarded a silver medal).
 1889.....DUFF, Capt. B., 9th Bengal Infantry.
 1890.....MAGUIRE, Capt. C. M., 2nd Cav., Hyderabad Contingent.
 1891.....CARDEW, Lieut. F. G., 10th Bengal Lancers.
 1893.....BULLOCK, Maj. G. M., Devonshire Regt.
 1894.....CARTER, Capt. F. C., Northumberland Fusiliers.
 1895.....NEVILLE, Lieut.-Col. J. P. C., 14th Bengal Lancers.
 1896.....BINGLEY, Capt. A. H., 7th Bengal Infantry.
 1897.....NAPIER, Capt. G. S. F., Oxfordshire L. I.
 1898.....MULLALY, Maj. H., R.E.
 CLAY, Capt. C. H., 43rd Gurkha Rifles (specially awarded a silver medal).
 1899.....NEVILLE, Col. J. P. C., S.C.
 1900.....THUILLIER, Capt. H. F., R.E.
 LUBBOCK, Capt. G., R.E. (specially awarded a silver medal).
 1901.....RANKEN, Lieut.-Col. G. P., 46th Punjab Infantry.
 1902.....TURNER, Capt. H. H. F., 2nd Bengal Lancers.
 1903.....HAMILTON, Maj. W. G., D.S.O., Norfolk Regt.
 BOND, Capt. R. F. G., R.E. (specially awarded a silver medal).
 1904.....MACMUNN, Maj. G. F., D.S.O., R.F.A.

MacGregor Memorial Silver Medallists.

- 1889.....BELL, Col. M. S., V.C., R.E. (specially awarded a gold medal).
- 1890.....YOUNGHUSBAND, Capt. F. E., K. Dn. Gds.
- 1891.....SAWYER, Maj. H. A., 45th Sikhs.
RAMZAN KHAN, Havildar, 3rd Sikhs.
- 1892.....VAUGHAN, Capt. H. B., 7th Bengal Infantry.
JAGGAT SINGH, Havildar, 19th P. I.
- 1893.....BOWER, Capt. H., 17th Bengal Cavalry (specially awarded a gold medal).
- FAZALDAD KHAN, Dafadar, 17th B. C.
- 1894.....O'SULLIVAN, Maj. G. H. W., R.E.
MULL SINGH, Sowar, 6th B. C.
- 1895.....DAVIES, Capt. H. R., Oxfordshire L. I.
GUNGA DYAL SINGH, Havildar, 2nd Rajputs.
- 1896.....COCKERILL, Lieut. G. K., 28th Punjab Infantry.
GHULAM NABI, Sepoy, Q. O. Corps of Guides.
- 1897.....SWAYNE, Capt. E. J. E., 16th Rajput Infantry.
SHAHZAD MIR, Dafadar, 11th B. L.
- 1898.....WALKER, Capt. H. B., Duke of Cornwall's L. I.
ADAM KHAN, Havildar, Q. O. Corps of Guides.
- 1899.....DOUGLAS, Capt. J. A., 2nd B. L.
MIHR DIN, Naik, Bengal S. and M.
- 1900.....WINGATE, Capt. A. W. S., 14th B. L.
GURDIT SINGH, Havildar, 45th Sikhs.
- 1901.....BURTON, Major E. B., 17th B. L.
SUNDER SINGH, Colr. Havildar, 31st Burma Infantry.
- 1902.....RAY, CAPTAIN M. R. E., 7th Rajput Infantry.
TILBIR BHANDARI, HAVILDAR, 9th Gurkha Rifles.
- 1903.....MANIFOLD, Lieut.-Col. C. C., I.M.S.
GHULAM HUSSAIN, Lance-Dafadar, Q. O. Corps of Guides.
- 1904.....FRASER, Captain L. D., R.G.A.
MOGHAL BAZ, Dafadar, Q. O. Corps of Guides.

REGULATIONS

OF THE

United Service Institution of India.

I.—Designation.

THE Institution shall be named "THE UNITED SERVICE INSTITUTION OF INDIA."

II.—Object.

The design of the Institution shall be the promotion of Naval and Military Art, Science and Literature.

III.—Proceedings.

The proceedings of the Institution will embrace—

1. The delivery of lectures at any station in India.
2. Debates on military subjects at any station in India.
3. The publication of a Journal, *quarterly*, containing:—
 - (a) Reports of Lectures with the discussions thereon.
 - (b) Reports of Debates with the discussions thereon.
 - (c) Original Papers on military subjects which the author is unable or unwilling to deliver in the form of a lecture.
 - (d) Opinions of Members on matters published in former numbers.
 - (e) Selections from the records of the Military Departments of India (by authority).
 - (f) Translations from foreign works of military interest selected by the Council or sent by Members.
 - (g) Short notes on professional subjects.
 - (h) Notices of inventions of military importance.
 - (i) Correspondence on professional subjects.
 - (j) Occasional Papers.
 - (k) Tactical Scheme Competitions.

IV.—Composition.

1. The following shall be invited to be Patron and Vice-Patrons *ex-officio*:—

PATRON.

His Excellency the Viceroy and Governor-General of India.

VICE-PATRONS.

His Excellency the Governor of Madras.
 Ditto ditto of Bombay.
 Ditto the Commander-in-Chief in India.
 His Honor the Lieutenant-Governor of Bengal.
 Ditto ditto ditto of U. P. of Agra & Oudh.
 Ditto ditto ditto of Punjab.
 Ditto ditto ditto of Burma.
 The Military Member of the Viceregal Council.
 His Excellency the Naval Commander-in Chief, East Indies.
 Lieutenant-Generals Commanding.

2. Besides the above, Vice-Patrons shall be limited to Members of the Royal Family, officers distinguished for their services, and Members who have been benefactors to the Institution.

V.—Government.

I.—Council.

1. The Government of the Institution shall be vested in a Council to be elected annually on the 1st May, or as soon after as possible, and to be composed of Fifteen Members (not necessarily selected on account of their official positions), residents of Simla.

II.—Sub-Council.

2. The Sub-Council will consist as follows :—

- (a) Two Members from the Royal Indian Marine.
- (b) Five Members from each Command.
- (c) Five Volunteer officers, one from each Command.

3. The election of the Council shall be carried out as follows :—

Early each year, the Secretary will circulate to Members, resident in Simla, a printed list of Members of the Institution who are permanent residents of Simla, and who are willing to take upon themselves the duties of Members of the Council (those willing to serve on the Executive Committee to notify the same), and each electing Member will record his vote by making a mark against the names of the fifteen candidates he selects, returning the printed list to the Secretary.

4. The election of the Members of the Sub-Council of the five Commands will be arranged for on the elective principle in those Commands, the names of the selected candidates only being sent to the Secretary. Each Command will, in the same way, arrange for the election of a Volunteer officer to represent it on the Sub-Council.

III.—Executive Committee.

5. An Executive Committee, consisting of a President and two Members chosen from the Council, will be elected annually at the General Meeting of the Council, for the transaction of all the ordinary business of the Institution during the year.

6. A Secretary shall be elected by the Council for the purpose of keeping, under the order of the Council, the Accounts, editing the Journal, and conducting correspondence, etc. He shall receive a monthly allowance of Rs. 100, and shall only hold the appointment for one year, unless the Council consider his re-appointment desirable.

7. The duties of the Council shall be to exercise a general control over the welfare and expenditure of the Institution.

8. The Executive Committee of the Council will frame such Bye-laws, for the general conduct of the Institution, as may appear to them necessary, subject to confirmation by the Council at the next General Meeting. All questions, which the Executive Committee are unable to dispose of should be referred by the Secretary to all the Members of the Council who are in Simla. The Executive Committee will pass papers for publication.

9. A General Meeting of the Council will take place on the 1st May, or as soon after as possible, for the audit of the Accounts, award of the Gold Medal, and such other business as may be brought before it; and another, *when necessary*, on the 1st October, or as soon after as possible, to consider any questions connected with the Institution that require settlement prior to the close of the Simla season.

10. Three Members of the Council will form a quorum, and the senior Member will preside. There will be no formally elected Chairman or Vice-Chairman of the Council.

11. At the General Meeting of the Council a statement of the Accounts and progress of the Institution will be laid before the Council by the Secretary. The Accounts will be annually audited by a competent Auditor.

12. Officers will be invited to become corresponding Members to forward the objects of the Institution, and to communicate with the Council.

13. The financial year of the Institution commences on the 1st January.

14. An annual donation of Rs. 3,000 is received from the Government of India in support of the Institution.

VI.—Membership.

1. All officers of the Royal Navy, Army, and of Volunteer Corps in India and gazetted Government officers, shall be entitled to become Members without ballot.

The Council shall have the power of admitting as honorary Members the Members of the Diplomatic Corps, Foreign Naval and Military officers, Foreigners of distinction, other eminent individuals and benefactors to the Institution, not otherwise eligible to become Members.

2. Life Members of the Institution will be admitted on the following terms:—

Rs. 50 plus entrance fee* = Rs. 55.

3. Ordinary Members of the Institution will be admitted on payment of an entrance-fee* of Rs. 5 on joining, and an annual subscription of Rs. 5, to be paid in advance. The period of subscription commences on 1st January.

4. Members receive the Journal of the Institution post free in India, have the use of the Reading Room, and can borrow books from the Library, whether resident in Simla or not.

5. Honorary Members shall be entitled to attend the Lectures and War Games and to use the premises and Library of the Institution without payment; but should they desire to be supplied with the Journal, an annual payment of Rs. 8, in advance, will be required.

6. Sergeants' Messes and Regimental Libraries, Reading and Recreation Rooms can obtain the Journal on payment of the annual subscription (Rs. 6) only.

7. If any Member fails to pay his subscription for any financial year (ending 31st December) before the 1st June in the following year, a notice will be sent to him by the Secretary calling on him to pay. If the subscription is not paid by 1st January following, his name will be struck off the roll of Members.

8. When a Member joins the Institution on or after the 1st October, having paid his first annual subscription, he will not be charged a second subscription on the following 1st January, but it will become due on 1st January of the second year.

9. Members proceeding to England on leave, who wish the Journal to be forwarded to them while absent from India, should inform the Secretary, and pay postage (*Re. 1 per annum*).

10. When a Member appears in orders for leave to England, his Journal is not despatched unless he asks for it, and while absent from India his subscription is not payable unless the Journal is supplied.

11. Members on return from furlough can obtain the numbers of the Journal that have been published during their absence, by paying the subscription for that period; and all Members on returning to India should inform the Secretary of the fact.

12. All communications should be addressed to the Secretary, United Service Institution of India, Simla.

By order of the Council.

G. H. WILLIS, *Captain R.E.*,

Secretary, U. S. I. of India.

20th October 1904.

* Subscribing Members of the Royal United Service Institution, Whitehall, London, are not liable for entrance fee while the affiliation rules are in force.

BYE-LAWS.

Rules for Contributions to the "Journal of the United Service Institution of India."

1. All papers must be written in a clear, legible hand, and only on one side of the paper. All plans must have a scale on them.
2. No remarks of a personal nature, or in any way subversive of discipline, will be permitted.
3. Anonymous contributions under a *nom-de-plume* will not be accepted nor acknowledged; all contributions must be sent to the Secretary under the name of the writer, and the paper will, if accepted, be published under that name unless a wish is expressed for it to be published either under his initials only or anonymously. The Executive Committee will decide whether the wish can be complied with.
4. Papers will be published, if passed by the Executive Committee.
5. The Council do not undertake to authorise the publication of such papers as are passed, in the order in which they may have been received.
6. Unless the Contributor states at the end of his paper that he wishes it published complete, or not at all, the Executive Committee will make such alterations in it as they deem necessary.
7. Contributors will be supplied with twelve copies of their papers, *gratis*, provided they apply for them before they are in the press.
8. Manuscripts of original papers sent for publication in the Journal will not be returned to the Contributor, unless he expresses a wish to have them back and pays the postage.

Rules for the conduct of Meetings and Debates of the United Service Institution of India.

1. The subject of all lectures and debates must be submitted for the sanction of the Executive Committee before such can be held.
2. The senior Member present, being an officer of the Navy or Army, shall officiate as Chairman at Meetings, when no other Chairman has been specially invited.
3. Speakers should address their remarks to the Chairman and not to the Meeting.
4. In the event of more than one Member rising to speak at the same time, the Chairman's decision as to who shall be heard first shall be final.
5. If called upon to do so by the Chairman, a speaker shall at once sit down.
6. No remarks of a political or personal nature, or in any way subversive of discipline or harmony, will be permitted.

7. Speakers are requested to furnish the Secretary with a copy of their remarks, paper or lecture for publication in the Journal.

8. No interruptions will be permitted during the reading of a paper or speech of another Member.

9. Meetings shall be dissolved or adjourned on the decision of the Chairman.

10. When the general public is admitted to lectures, etc., a certain part of the room is to be reserved for Members and their friends accompanying them, the Secretary making the requisite arrangements.

11. Non-commissioned officers and soldiers of the Army and Volunteer corps shall, when practicable, be permitted to attend lectures, etc., and introduction by a Member shall be sufficient to admit non-subscribers for the same purpose, except when otherwise notified.

12. Paid reporters will, under ordinary circumstances, be entertained at the expense of the Institution for noting down discussions only. When hired to take down a lecture or a paper read at the Institution, the report will be revised by the Secretary before publication in the Journal.

13. Accommodation will be reserved for representatives of the Press desirous to report lectures, papers read or discussions held at the Institution, but such reports, unless revised by the Secretary, will not be recognised as bearing the impress of the Institution.

By order of the Council,

G. H. WILLIS, *Captain, R.E.*,

Secretary, U. S. I. of India.

20th October 1904.

United Service Institution of India.

LIBRARY RULES.

1. The Library is only open to Members of the United Service Institution of India, and Members are requested to look upon books and maps as not transferable to their friends.

2. No book, map, or Journal shall be taken from the Library unless the same shall have been registered by the Librarian in the Issue Book.

3. Books and maps are only issued between the hours of 10 A.M. and 5 P.M. during the summer, 10-30 A.M. and 4 P.M. during the winter, and 10 A.M. and 2 P.M. on Saturdays.

4. A Member will not be allowed to have from the Library, at one time, more than three books or sets of books, two maps and three Magazines or papers.

5. All papers and Magazines also works catalogued under the heading "Cyclopaedic," and all books and maps noted as "Confidential," or "Reference only," must not be removed from the Reading Room.

6. No particular limit is set to the number of days for which a Member in Simla may keep a book or map, the Council being desirous of making the Library as useful as possible to such Members as may be undergoing any particular course of study; but at the same time if within a fortnight of the issue of a book or map to any Member, the book or map is required by any other Member, the Secretary is authorised to desire its immediate return for fresh issue.

7. Books or maps are issued to Members at **out-stations** under the above rules, and subject to the following further conditions: (a) all applications for books and maps should be made to the Librarian and accompanied by the requisite sum for postage, otherwise they will be sent V. P. P.; (b) such books or maps must be returned *post paid within one month of date of issue*; (c) if at any time a book or map issued to a Member is required for reference by an intending lecturer, the Secretary is authorised to re-call such book or map immediately, but he will re-issue it, when available, and if desired, to the Member from whom it was re-called. In such cases the postage on re-call and re-issue will be paid by the Institution.

8. If a book, Journal, or map is not returned within four months of issue it must be paid for, without the option of return, if so required by the Executive Committee; unless application is made within three months of date of original issue, to renew the period of loan for a further term of *one month only*.

9. Lost and defaced books or maps shall be replaced at the cost of the Member to whom they were issued. A book or map shall be held to be lost when a Member omits to return it on receipt of a registered

cover from the Secretary, and on the expiry of one month (in the case of Members residing in England, three months) from the despatch of such a cover, if reasonable explanation be not forthcoming, a new copy shall be bought and charged in the Member's account. In the case of lost books that are out of print, the value shall be fixed by the Executive Committee and the amount, when received, spent in the purchase of a new book.

10. Members are invited to note any books or maps which they think might with advantage be procured for the Institution. A list of the books and maps thus suggested will be submitted periodically to the Executive Committee, and action taken as may be deemed advisable.

11. Members are invited to contribute presents of books, maps and photographs of Naval or Military interest. These may be sent "Bearing" to the Librarian who will note them as "presented," and duly acknowledge their receipt.

12. The issue of a book or map under these rules to any Member implies the latter's compliance with the rules and his willingness to have them, if necessary, enforced against him.

13. The Catalogue of the Library may be purchased on payment of Rs. 1-8-0.

SIMLA ;
1st November 1904. }

By order of the Council,
G. H. WILLIS, *Captain, R.E.*,

Secretary, U. S. I. of India.

United Service Institution of India.

OCTOBER 1904.

List of books added to the Library during the quarter.

Catalogue of the Library can be had from the Librarian on payment of Rs. 1-5-0.

No.	SUBJECT.	AUTHOR.	DATE.
1	List of Reports and Returns to be rendered by the Army (including departments) in India. <i>(Presented.)</i>	Official ...	1904
2	List of Army Forms and India Army Forms in use in India and the copies supplied annually to units, etc. <i>(Presented)</i>	Official ...	1904
3	Linguistic Survey of India:— <i>(Presented.)</i> Vol. II. Mon-Khmer and Siamese-Chinese Families (including Khassi and Tai).	Grierson, G. A. ...	1904
	Vol. III. Tibeto-Burman Family. Specimens of the Kuki-Chin and Burma Groups.	Ditto ...	1904
	Vol. IV, Part I. Indo-Aryan Family. Mediate Group. Specimens of the Eastern Hindi Language.	Ditto ...	1904
	Vol. V, Part II. Eastern Group. Specimens of the Behari and Oriya Languages.	Ditto ...	1904
4	The Army of the Indian Moghuls.	Irvine, W. ...	1903
5	Letters on applied tactics	Griepenkerl, Major ...	1904
6	Stonewall Jackson, 2 vols.	Henderson. Lieutenant-Colonel, G. F. R.	1904

No.	SUBJECT.	AUTHOR.	DATE.
7	The Punjab in Peace and War.	Thorburn, S. S. ...	1904
8	Nepoleon, as a General, 2 vols.	Wartenburg, County. Von.	1904
9	With General French and the Cavalry in South Africa.	Goldmann, C. S. ...	1904
10	A History of the British Empire, vol. III.	Fortescue, The Hon. J. W.	1904
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14	Bhotan and the story of the Doar War.	Rennie, Dr. D. F. ...	1866
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UNITED SERVICE INSTITUTION OF INDIA.

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The Indian Review, Madras, December, January and February.

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Revue de Cercle Militaire, Paris.

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